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BRIEFLY TOLD.

IN MEMORIAM TESTIMONY: PACIFIC COAST GAS ASSOCIATION.—That the Pacific Coast Gas Association had not only the disposition, but also found the time to listen to fraternal recountings respecting those that had passed fron them in death during the year, is well shown in the testimony rendered in the recitals here appended.

ERIC C. RANDALL.—We mourn the loss of one of our true and faithful members, Eric C. Randall, who died November 23d, 1906, at his home in San Jose, Cal. He was born in Grimsby, Ontario, Canada, in 1855. Mr. Randall came to California 18 years ago, and was employed as General Agent for the Los Angeles Gas Company. He afterwards came to San Francisco, where he held an important position in the stove department of the San Francisco Gas and Electric Company. Following this he went to San Jose where for many years he was employed by the San Jose Gas and Electric Company, as its expert when the first Welsbach gas lamps were there introduced in that city. Later on he invented a gas furnace, and engaged in business for himself as Manager of the California Gas Furnace Company. Mr. Randall joined the Pacific Coast Gas Association at its second meeting, held in Sacramento, May 15th, 1904. In 1897 he was married to Miss Catherine Denne, who survives him. We offer to those who survive him our sympathy and condolences.

WILLIAM G. BARRETT.—The Pacific Coast Gas Association mourns the loss of one of its charter members, who was also an honorary member of the Association, and the gas fraternity has lost one of its oldest and best beloved members in the death of William G. Barrett, of Oakland, Cal., who for nearly 50 years was identified with the lighting interests of San Francisco. Mr. Barrett was born in Chester, Vt., December 12th, 1822, and crossed the plains in 1850, to the Placerville region in California. In 1860 he became Collector, and in 1862 Cashier and General Bookkeeper of the San Francisco Gas Company. In 1877 he was elected its Secretary and Treasurer, holding this dual position through the various mergings and successive ownerships of the lighting interests of San Francisco until 1902, when he was retired as Secretary emeritus of the San Francisco Gas and Electric Company. Mr. Barrett was one of the members of the old Union Club, and afterwards of the Pacific Union, and of the Bohemian Club as well, of San Francisco. When the Pacific Coast Gas Association was formed, on July 11th, 1893, deceased signed the roll of charter members, No. 4, and on July 16th, 1902, he was unanimously elected an Honorary Member of the Association. During these years he was a constant attendant at the meetings, and although not an active participant in the discussions, his genial, kindly presence and the love which we all bore him brought sunshine into our midst. Mr. Barrett died, at his home in Oakland, the morning of Thursday, August 8th, after a brief illness. Besides his widow, he leaves a son, Charles L. Barrett, who succeeded to his father's position in the San Francisco Gas and Electric Company, and a daughter, Mrs. Stetson G. Hindes. The Pacific Coast Gas Association was represented among the pall-bearers at the funeral, which occurred Sunday, August 11th, at Oakland, and sent a floral tribute, in the form of the badge of the Association. Floral pieces were also sent by the employees of the San Francisco Gas and Electric Company, all of whom looked upon Mr. Barrett as a dear friend and counsellor.

"His youth was innocent; his riper age
Marked with some act of goodness every day;
And, watched by eyes that loved him, calm and sage
Faded his late declining years away.
Meekly, he gave his being up, and went
To share the holy rest that waits a life well spent."

CURRENT COMMENT.—

IT is quite certain that Mayor Thompson, of Detroit, will appoint Mr. James T. Lynn to the vacancy on the Public Light Commission of that city, occasioned by the death of Mr. E. H. McCurdy. His Honor could not name a more competent man.

THAT the Rotary Meter Company's apparatus is finding favor at the hands of those in charge of the manufacturing divisions of large gas works is clearly shown in the Company's new notice in our advertising columns. From it we learn that, in October, 1906, the Consolidated Gas Company, of New York, placed in its 21st street station a rotary meter up to passing 4,000,000 cubic feet of gas in 24 hours, and last October the Brooklyn Union Gas Company ordered a meter of similar capacity to be set up in its Nassau branch works. The illustration in the advertisement shows a meter capable of passing 5,000,000 cubic feet per diem, as the apparatus was set up on a flat freight car destined to transport it to the works of the City Gas Company, Los Angeles, Cal.

LIBRARY OF CONGRESS NOV 18 1907 SMITHSONIAN DEPOSIT.

THE new plant of the Three Rivers (Mich.) Gas Company was put into active operation a few days ago without a hitch, and the turning on of the lights in the street lamps, the business places, the residences, etc., was the occasion for a general outcoming of the people of Three Rivers, and also of many residents from nearby places. Of course, "the gas office" was the center of interest, and in its commodious and attractive sheltering hundreds gathered to witness the many uses to which gas is successfully and economically put. Demonstrators were operating gas cookers that made ready excellent biscuits and steaming, fragrant coffee for the sustaining of the visitors, whose gustatory satisfaction was all the more enhanced by appropriate airs from the Waltz Orchestra of Three Rivers. The plant was financed and constructed by the Commercial Securities Company, of Detroit, and the officers of the Three Rivers Company are: President, George T. Wolf; Vice-President, Ambrose Petry; Treasurer, M. C. Straight; Secretary, Howard L. Olds; Manager, Davis Elder. That the Company is to succeed is evidenced by the fact that it begins with 300 consumers, and that the people are exclaiming, "Why did we not have gas sooner?"

THE current number of *Cassier's Magazine* is a special issue devoted to the subject of gas for power. The book numbers over 200 pages, and the matter contained therein certainly makes good the statement of the publishers that "It makes a reference book on the internal combustion engine and gas producer." Especially noteworthy articles in the collection are those respectively by Mr. B. H. Thwaite and M. Leon Greiner, of the Cockerill works at Liege.

Correspondence

[The JOURNAL is not responsible for the opinions expressed by correspondents.]

Seeming Strange Inattention.

NORFOLK, VA., November 9th, 1907.

To the Editors AMERICAN GAS LIGHT JOURNAL: It may seem strange to the thoughtful person, interested practically or financially in the manufacture of gas, that at the recent annual meeting of the American Gas Institute the very important improvement in coal gas method of manufacturing, so greatly appreciated in Europe, especially in Germany, received no attention whatever. I refer to the vertical or "standing" retort system, mention of which was made in your columns a number of times during ths past two years.

The advantages claimed for this system are: Better, and at least as much gas per unit of coal used; better coke; *no naphthaline;* at the least 50 per cent. more ammonia; better tar—that is, no black, pitchy tar, but dark brown, liquid, rich tar; *no stopped pipes;* the greatest economy in labor possible—water gas manufacture not excepted; simple, consequently economical, construction.

These advantages are well authenticated, and while the method of carbonization in vertical retorts upsets entirely some of the old theories of what goes on in a coal gas retort during destructive distillation, they are now established facts, and it is remarkable that our American gas engineers appear so slow to appreciate these extremely valuable features.

The measure of appreciation abroad may be better understood by reference to the following extract from *Journal für Gasbeleuchtung*, October 26th, 1907:

In operation and course of erection at this date, are the following works using the Dessau vertical retort system:

Barcelona	15	benches,	with	150	retorts.
Cologne	24	"	"	240	"
Dessau	6	"	"	60	"
Potsdam	4	"	"	48	"
Brandenburg	6	"	"	60	"
Duisburg	5	"	"	50	"
Aschaffenburg	1	"	"	8	"
Offenbach	8	"	"	80	"
Dusseldorf	7	"	"	70	"
Hamburg	5	"	"	50	"
Dortmund	10		"	100	"
Zuerich	10	"	"	100	"
Berlin (a)	4	"	"	48	"
" (b)	7	"	"	84	"
" (c)	1	"	"	10	"
Ludwigshafen	3		"	30	"
Solingen	3	"	"	30	"
Halle	6	"	"	60	"
Elberfeld	12	"	"	120	"

This improvement, following so close upon the earlier, but now found inferior to the vertical, while superior to the horizontal system, is eloquent as to the impression made upon the progressive European gas engineers.

It gives me pleasure to state that at least one American gas man, and owner of some small gas works, has decided, after a personal visit and inspection of the Dessau and several other European works, to install the vertical retorts at one of his plants, though the latter is only a very small one.

A word of caution to the general reader may not be out of place at this time. Do not confound this system of vertical retorts with the "Vertical Eight's" sometimes mentioned in advertisements, and once in a paper read before the American Gas Light Association, as the latter were simply horizontal retorts set in pairs directly over each other, and were really not vertical retorts at all.

Respectfully, FREDERIC EGNER.

[Continued from page 844.]

PROCEEDINGS AMERICAN GAS INSTITUTE, SECOND ANNUAL MEETING, HELD AT THE NEW WILLARD HOTEL, WASHINGTON, D. C., OCTOBER 16, 17 AND 18, 1907.

FIRST DAY, OCTOBER 16.—MORNING SESSION.

GAS EDUCATIONAL FUND.

The President—You have just heard the report of the Trustees of the Gas Educational Fund made to us as one of the subscribers to the fund. The Institute subscribed $350 a year, and this is a report to the Institute as if it were an individual subscription. Owing to the relation that the old Gas Associations held to the fund, the Secretary has come here to read the report and ask us if we have any criticisms or suggestions. The report is now before you.

Mr. Nettleton—I move that the report be accepted, published in the Proceedings, accompanied by the questions and answers sent out to the various classes during the year.

Mr. Wm. McDonald—Second the motion.

Mr. J. D. McIlhenny—I would like to ask what has been done with the proposed publication of the questions and answers in one volume. It seems to me they have accumulated a vast amount of valuable information there which to-day is practically inaccessible. We have to wade through a lot of volumes in order to find it, which if condensed in one volume would be very useful. I understood that that was going to be done.

The President—That was referred to in the report, and I will ask Mr. Forstall to report furtner in regard to that.

Mr. A. E. Forstall—Briefly, we were working on the subject, but the publication of that volume has been delayed partly because of an attempt to learn whether or not there were any figures for the weights per cubic foot, the calorific value, which varies with about every different text book, and partly because the Secretary has not had time enough to devote to the work to put it through. [Motion adopted.]

The President—The next business is the hearing of a paper, by Mr. Chas. H. Dickey, of Baltimore, Md., on the

OBLIGATIONS IMPOSED BY THE POSSESSION OF A FRANCHISE.

Mr. President and Gentlemen of the American Gas Institute: I beg to acknowledge both the pleasure and honor of being permitted to speak to you on this occasion. It is a pleasure because I am among my friends and see around me the intelligent and earnest workers of our Gas Institute, and I consider it an honor because I feel deeply the subject under discussion. I feel that I am discharging a high responsibility to you and our interests, which are necessarily of a public and corporate character, and if in my remarks I have assisted you in these great undertakings I shall consider my work well done. I fully realize that an occasion of this sort is fraught with great possibilities. There are influences that can be made impressive and far-reaching. At this time, therefore, it is well for us to pause and bestow a serious thought upon matters of interest and moment to us all.

There is a school of philosophy which holds that all good deeds and all ethical impulses are ultimately rooted in selfishness. There is another school which maintains that the greatest good to the greatest number is the motive and end of moral effort. There is still another school of ethical thought which contends that the inner conscience is the sole director and arbiter of right action—that right for its own sake is the final and ruling motive.

In presenting to you what I consider the obligations imposed by the possession of a franchise I think I have blended the theories of each of the three schools just referred to. I urge these obligations because I believe it is to the interests of those upon whom they rest to faithfully discharge them; secondly, because their performance carries with it the widest public utility and advantage; and thirdly and chiefly, because wherever an obligation arises it is right to properly fulfill it.

Before defining and classifying the various duties of which it is my privilege to speak to you, I beg to make a few preliminary observations of a general character.

A franchise, as under discussion here, as we well know, is the power of a corporation to exercise various rights and privileges. These rights are the creatures of law and exist solely by sovereign grant. They spring from the people, from that power which resides only in the people, and it is important for us to fully appreciate that all franchises are necessarily bestowed by popular will. They are privileges which the people have delegated to their fellow-men to do

for them what they cannot reasonably do for themselves. These are facts, fundamental and underlying, and should be borne in mind throughout the whole consideration of the subject in question. Each franchise, therefore, carries with it an obligation *to* the Commonwealth or community which bestows it, and each franchise also carries with it an obligation *from* the Commonwealth or community which bestows it.

There is another fundamental principle connected with these grants which makes it necessary that the corporation act within the scope of its powers. It must not wrongfully or unlawfully assume to take that which does not rightfully belong to it. If the State has granted a franchise which we will designate as "*a*," we have no right to claim "*b*," "c" and "*d*" in addition to "*a*." Therefore, it becomes necessary in defining this scheme to state that the by-laws of our corporations and its proceedings shall not be inconsistent with its charter nor with the general laws of the land. Equality is equity, and equity in dealing with the public is a supreme and vital obligation, and our corporations must remember this potent fact and carry out its work impartially to all. All those things which may be done within the letter of the corporate charter must not be done in an oppressive and intolerable way, but we must remember that there is attached to every franchise an implied but distinct duty to use it reasonably.

With the just and full enjoyment of all our rights and powers which have been granted, there is surely a right to the State to the reasonable control of their exercise, but never taking from the substance of the privileges bestowed. Many questions have arisen in the past, and many questions will arise in the future of an important and delicate nature, because a corporation is an institution of the State, having been granted for its own convenience in performing public functions, and, therefore, its charter may be amended or appealed, and it is in this aspect, as we look at the subject calmly and deliberately, that the State and the incorporators are deemed to occupy the position of contracting parties, the franchise flowing from the State being its consideration and the obligation to perform the corporate functions being the obligation imposed upon the corporation.

Another point which must be kept plainly in view in considering these matters is that vague and ultimate power resident in every State, the power which, for the want of a better name, we will call the "police power," which means that all property is necessarily subject to this power. It is the supreme power or right of the State to protect and preserve itself and its subjects. It deals with public health and public safety, public morals and public welfare. Accordingly, all corporate franchises are held subject to this sovereign power. Our corporations are required to do or not to do many things by virtue of this power, but in defining this power I would say that the regulations must have reference to the comfort, safety and welfare of society, yet they must not be in conflict with any provision of the charter. They must not, under pretense of regulation, take from the corporation any of its essential rights or privileges which the charter confers. In short, it must be a regulation *in fact*, and not amendments of the charter in curtailment of the corporate franchises.

It has been claimed that the power of interference and control by the States would be inconsistent with the property rights of the corporation. I refer to such laws that require corporations to make such rates or charges for the benefit of the commonwealth, and it seems to be settled by decisions of the courts that the State rights may require such conditions from the corporations to deal impartially and equally with the public, to prevent discriminations against different classes for like service. These regulations must be reasonable and not confiscatory or arbitrary.

This power has been held to exist to prevent injustice and extortion, also upon the ground that corporations whose business and circumstances are such as to give them a practical monopoly in a special field of production or service which concerns the general public, are necessarily subject to have their privileges controlled in this way.

In a great case decided in the Supreme Court of the United States, that august tribunal said: "Generalized and divested of the special form which it assumes under a monarchical Government based on feudal traditions, a franchise is a right, privilege or power of *public concern* which ought not to be exercised by private individuals at their mere will and pleasure, but should be reserved for public control and determination either by the Government directly or by public agents acting under such conditions and regulations as the Government may impose *in the public interest and for the public security*."[1]

And so in a large number of cases, franchises have been defined as a privilege of a *distinctively public nature* originating in legislative grant.

In one case[1] it was said: "Franchises are rights and privileges acquired only by special grant from the public through a Legislature, *which imposes upon the grantee, as a condition therefor, a duty to the public to see that they are properly used*."

The deep importance of this conception cannot be too seriously appreciated

The principle of corporate life is intricate. It is extensively wrought into the constitution and working of modern society, and it is not too much to say that without such institutions the present high development of society, and particularly of its industrial phases, could not be maintained at all.

The whole matter of transportation has passed into the control of corporations; so have all the applications of light, steam and electricity. The wondrous work wrought by the locomotive, the telephone and the telegraph, the gas engine and the electric motor, are all agencies which invention has developed. The invention of man developing these conveniences for mankind must naturally be in the hands of the corporations, and it is easy to see that their relations to society are most intimate. They are extensive and their stupendous powers are exercised directly upon the resources of every person in every community. They have brought about new conditions, and these conditions are not temporary, and in the development of society it must permanently adjust itself to them. We can but stop and think, almost bewildered, of the great and extraordinary powers of these corporations created by the law, and their relations which they have to the Commonwealth which has created them, and there comes at times a feeling of extreme uneasiness which pervades the community concerning their action. It is believed by many that their great and important prerogatives are not at all times used fairly in relation to public interests which are affected by their exercise.

Let me state the case in this respect as ably and strongly presented by an impartial authority upon the subject, in order tnat we who are assembled here may the more deeply and vividly realize the delicate and important nature of the obligations due from us to the public in the admistration of the responsible interests with which we are identified, and in order that, imbued with that realization we may doubt ourselves in energy, strength and devotion to render a wise and conscientious account of our great stewardship:

"Apprehension is founded not in the idea that corporations acting in the legitimate exercise of their powers, vast as they are, menace in any way the Commonwealth, so much as in the conviction that the control of those powers is inadequately accorded and that they may be and are seized upon by irresponsible persons who abuse them in their personal interests.

'Great fortunes have suddenly accumulated in the hands of individuals, but not only this, but by those means and by the operation of the principle that a mere majority determines corporate action an almost irresponsible control is obtained over enormous amounts of the money of other people. This facilitates in practical affairs the concentration of the absolute control of a number of railroad corporations all acting directly upon the most vital relations of society, in the hands of a few persons actually owning but a small proportion relatively of their stock. This involves the development of a social power in the hands of mere citizens, unprecedented in society and overshadowing mere political power, for it acts directly, as has been said, on the relation between the resources of every man, even the poorest, and the cost of subsistence of himself and his family. It may be borne in mind that the powers whose burdens in every time past have produced a policy of discontent and led on to revolution have been social and not political ones. That it is possible for any individual to start with nothing and in a few years come to irresponsible administration of such a force for private uses, is evidence that at least the sources of so great a social power are at present very insecurely guarded.

"These considerations serve to indicate the social relation of these corporate persons and the tendency of the proper use and of the abuse of their peculiar constitution. Society will be sure to establish for itself such safeguards as justice and sound economy may dictate. The courts have held that corporations are amenable to the control of the State in their business and property and rates of charge, to at least the same extent as natural persons are, unless they are freed from such control by elements of contract in their charters; and there are those who insist that the State cannot in any way disengage itself from its elements of sovereignty nor part with its legislative or judicial powers.

"It is impossible that any principle of law can exist, under whatever formulæ it may be said to lurk, which requires society to be still while it is financially despoiled or is otherwise menaced in the beneficent working of its organization."

Such, then, is the magnitude of the obligations of which I am now speaking.

1. California vs. Central Pacific Railroad Company, 127 U. S. 40.

1. St. Louis, etc., Railroad Company vs. Halsley, 18 Ills., App. 82.

Now, gentlemen, I do not wish you or any of our worthy friends who may read these lines or those on which I shall speak later in regard to graft, to think that I hold that all corporations are, as a rule, corrupt, for I know from my own personal observation that this is not and cannot be true; but somehow the average citizen is imbued wih erroneous ideas on this subject; he has had no doubt brought home to him many cases of greed and graft, not only in connection with public service corporations, but chiefly in connection with civic administration of affairs, of which probably the State building at Harrisburg furnishes a conspicuous example, and from these observations he probably considers many of our corporations alike, and has by degrees come to the belief that many of them are affected with the unfortunate evil in question. This is, of course, an utterly extravagant and unwarranted view of the case, and it is for us, by a rigorous and determined insistence upon the strictest standards of propriety, to entirely disabuse the mind of even the most skeptical of all prejudice against corporations upon this score.

With these essential conceptions in mind, let us take up more at large the obligations which they suggest as being laid upon the members of the public service corporation. *The people must be treated justly.* There is no firmer or broader foundation upon which the true interest and steady upbuilding of a public service corporation can rest than the respect, the confidence, the goodwill and gratitude of the population it serves. No corporation ever failed on account of, but, on the contrary, many corporations owe their success and advancement to liberal dealing with the public, and a generous realization of and respect for public rights. I am not encouraging a toadying, weak-kneed sacrifice of corporate rights. I am speaking of a wise and just regulation and use of our rights for the common good, so that our own advantage and our own sense of justice and of duty well done may harmonize with the development, the enrichment and progress of all.

In defining grants from the people to the corporations I have stated that a contract exists, and the fulfilment of same should be an obligation not only upon public corporations, but also upon the commonwealth under which it is exercised. The people are prone to forget their petitions to these corporations in the early days of their existence, when large tracts of land were granted for shops and other inducements were offered in order to have railroads and other enterprises come to their door. They forget as they grow into large centers that although these franchises were granted by the people, yet, nevertheless, the individual enterprise of progressive and active men complied with their wishes. They brought to them their railroads and built their gas and electric plants, and it is an obligation on the part of the people not to allow their good judgment or just opinions to be clouded so that unwarranted action is taken to obstruct or wrongfully control these very corporations which have helped to make them great and prosperous.

I have also said that the corporation must not delegate unto itself powers which are not granted in its franchises, and in accepting the franchise or in the purchase of a property the impressions that are made on the public mind will go far toward your success or failure. The rights of the corporation clearly do not come before the rights of the people. No announcement could be made of curtailment of service in order that dividends must first be paid before the public is best served, because the purchase of any property carries with it the obligations as imposed by the franchise, and by taking the people into its confidence, with the understanding that every effort will be made to build up for their benefit, there will be co-operation and support which can be gained in no other manner.

The time seems to have come when it is the natural desire in all these affairs to treat the people with the consideration which is due them. And let me say here, that we occupy a position to-day that has very much to do with the future of our corporations as to what disposition will be made on these questions by the will of the people. We must not live too close to the letter of the law; we must not draw the lines too tight or too fast, without giving due consideration to the situation; but we must make such rules that will treat with the people, showing them a broad and liberal attitude which our corporations mean to maintain.

The making of rules is very important and must of necessity have great bearing upon the ultimate working of our corporations, but no matter how favorable such sales are, no matter what instructions are given, it is the man behind the desk, the man in his daily labor who is the cushion between the corporation and the public, and it is for him and for all of us to realize the fact, not only that we are working for the corporation and its best interest, but also recognize the fact that there is a duty from us to the people, a courteous manner which will produce respect, and, unless this is faithfully carried out, these rules will fail of their most desired end.

It is therefore necessary for the public service corporation employees to recognize to the fullest extent that they are not only working for the corporation, but also recognize the fact that they are serving the people from whom their corporation gets its rights and privileges. It is in this attitude, therefore, that our work should be done so that we may instill into the minds of the people a clear and comprehensive idea of our desires. And it is evident to my mind that such schooling on our part would certainly produce that confidence and trust desired, proving beyond a doubt the fair dealings and liberal policy established by the corporation. It has been clearly demonstrated that one of the first rules in life to one's fellow-man is courtesy and respect. With that he will rise in the ranks with the trust and confidence of all, and with this in mind he will eliminate all the worst elements that affect the workings of public corporations. He will have ambition, but it will be built up on the lines of faithful service and the earnest desire for the fair treatment that must necessarily come to him at the hands of the corporation, because in dealing with their employees the corporation owes to them an obligation of reward for fidelity to their duty; it owes them the adequate provision for health and comfort and protection from every quarter.

Nor should the corporation forget its duty and obligation to its stockholders. Those who manage its corporate affairs are trustees for the stockholders. Every fair, just and lawful effort should be made to serve and promote the interest of those who are the stockholders as the real proprietors of the corporation, and weighted with such responsibilities, which it is unnecessary for me to describe in this presence, every true official should seize upon every fair opportunity to promote the corporate good.

There is another obligation which I would urge, and that is the wisdom of maintaining frank and just relations with the press. The newspaper of to-day is a great educational and moral agency; it molds and sways public opinion, and it makes an impression directly upon the public intellect. It is important, therefore, that we should earn the goodwill of this great agency of the public service. This can be done by the pursuit of a fair policy on the part of the corporations with frankness and confidence. It seems to me there is no one more quickly or heartily responsive than the intelligent, public-spirited newspapers of this country. Guided by broad and enlightened intellects they are seldom led astray. If they are deceived they soon learn to appreciate the attitude, and woe unto the body corporate which so conducts itself as to bring down upon its head the lightning of a respected and powerful editorial Olympus. Before leaving this subject, however, it gives me much pleasure to read a copy of a letter received by one of the members of our Gas Institute from the editor of one of our large daily papers, as follows:

"My dear Mr. ——: I am sorry I missed you when you called. I am sorrier that you are leaving ——, not only on the ground of the very pleasant personal relations which are broken thereby, but on account of the loss sustained by the gas using public. Under your management the —— Company was a model public service corporation in the matter of courtesy and considerate treatment of the public and in the efforts to meet all reasonable demands. You are the only manager of a public service corporation within my knowledge who handled the business as if it were competitive and succeeded in making the people pay a price which they considered too high, and smile. I hope you will have success in your new field. Yours sincerely,——."

I wish to also read from a clipping which I took from one of the large newspapers a short time ago in another of our large and progressive cities as follows:

"Any man who enters a strange city to assume the management of a public service corporation has his work cut out for him. It is neither his fault nor that of the public that he is apt to be regarded with some hostility. The public has been fooled into making disadvantageous contracts. It is met with all sorts of management, mostly of the high-handed sort, which says: 'There is our franchise and we propose to take full advantage of it.' When Mr.—— came to —— to assume management of the gas company the public accepted him on suspicion, but he will leave —— with the hearty goodwill of every citizen who has kept him and his policy in view. Mr.—— has shown admirable tact in administering the affairs of his employers and in maintaining a proper consideration for the company's patrons."

There is another obligation which appeals to me, perhaps more strongly than any of those touched on; and in this connection I wish to quote a few words taken from the address of one of our learned judiciaries, delivered in Jamestown some few weeks ago, as follows:

"In this hour of angry retaliation upon the corporations, an hour in which the innocent suffer with the guilty, we must not forget that

public officers are themselves most to blame. The money was solicited under circumstances ofttimes amounting to a demand. Its acceptance created an obligation. The alliance which arose has cost the people dear. Wisely did Mr. Bryce advise us that 'we should aim to bring as few financial interests as possible within the sphere of governmental activity.'"

It is for the corporation to keep itself clean and above suspicion and graft. It is to my mind the very best thing that the corporations of this country can do in their own interest as well as in the interest of the public whom they are serving, and the citizens of the commonwealth would do well to lend them a helping hand in striking down and trampling under heel the *régime* of graft which has spread itself over the country.

Every corporation should make the first article of its by-laws imperative that no special favor of any sort or any consideration should under any circumstances whatever be extended to any member or officer of the Government. It would be an inestimable boon and godsend to the whole nation. The corporations would thus not only achieve incalculable public good, but they would loom up like lofty oaks in an evergreen forest of popular respect and affection. The corporation should not intervene in legislation, and if they do not there would be no legislative tax upon them for the purpose of extorting money. Therefore, under any circumstances whatever let us refuse to buy or bribe public officials, or to take part in elections, or to intervene corruptly in legislation, and in setting our face like a flint against these practices the public service corporation would not only be secure in its own immunity from grievous evils, would not only bestow positive good upon itself, but would be discharging an obligation of the highest character to the people and to the State.

Now, gentlemen, a few words in conclusion and I shall have done. We live under a *régime* of law. Ours is a Government of law—rooted in the hearts, upheld by the patriotism, administered by the wisdom of a law abiding people who have been trained by inveterate instinct and intuition, developed from the rude institutions of the Saxon forests, through every period of transition and progress to the present time, in the ways of civil liberty and self rule. To the dominion of the law as interpreted and applied by able, impartial and fearless courts, we turn with a serene and abiding sense of safety. This is the anchor of the ship of State. This is the tabernacle in which the rights, the liberties, and property of the people are sheltered. The citizens of the great Republic, come what may, shall still cling to this principle the supremacy of the law—as the shipwrecked mariner clings to the last plank when night and tempest close in upon him. But by wise conduct, especially upon the part of all who have a stake in the protection of society, there shall be no night and there shall be no tempest. All that capital and vested interests ask for is *justice*. In the name of the social order, of the ends of Government, of the fundamental moral law, in all we do and all we seek let us act under the banner of *justice*. Beneath its broad and benign cloak we may be assured that not only life and liberty, but property, individual and corporate, and in every form in which it can lawfully exist, shall be doubly safe against every invasion, not warranted by the law of the land. For every man imbued with the spirit of *justice* understands that the law of the land is equality of legal rights, which no man is too high and no man too low to share in; that this principle is the Ark of the American Constitution - the very object of its foundation - and that in order to maintain and defend it, it is the duty of all its loyal votaries to join hands in an unbroken and indissoluble bond to cherish the proud traditions of their inheritance and to stand fast by the Covenant of the Fathers.

The President—The Nominating Committee desires more time, to report at some later hour. [Adjourned to 2 P.M.]

(To be Continued.)

Discussion of Report of Committee on Meters, as Prepared by Mr. William J. Serrill, Philadelphia, Pa., for the Second Annual Meeting, American Gas Institute.

Referring to the Report[1] of the Committee on Meters, which was presented at the last meeting of the Institute, and was by motion deferred for consideration until the present meeting, the writer believes that it would be a mistake for the Institute to adopt the standard recommended in the report for the following reasons:

1. The statement of the capacity of meters, in terms of a differential pressure of 0.5 inch water column, is preferable to the use of 0.3 inch differential pressure. All meters can safely and satisfactorily be used at a differential pressure of 0.5 inch. Consequently, the capacity should be stated in terms of this unit, because the ordinary conception of the word capacity is the maximum, safe-working capacity of the machine. In all meters of modern construction, a differential pressure of 0.5 inch is the maximum safe-working capacity.

2. Capacities proposed in the five sizes recommended by the Committee are too close together. Gas companies are not in position to determine, with any degree of accuracy, the maximum rates of consumption of the consumers. Consequently, the determination of the sizes of meters to set in specific cases is not an exact science. Under these conditions there is no advantage in having any two sizes, the capacities of which are close together. Another objection to the narrow ranges between these capacities is that it will require too many sizes to cover the total range of capacities demanded by the business. Consistent with meeting the requirements, the fewer the sizes in a standard of meters the better.

3. The smallest capacity recommended by the Committee is too great. Experience has shown that the present 5-light meter, which has a capacity of 70 cubic feet per hour under 0.3 inch differential pressure, is large enough to supply from 80 to 90 per cent. of the consumers in most cities. Any meter having a capacity of 100 cubic feet under 0.3 inch differential pressure, will cost more than the present 5-light meter. Consequently, the present 5-light meter should be a part of any standard.

4. The largest capacity recommended by the Committee is very much too small. The Committee apparently recognize the need for larger sizes, but believe there is not sufficient experience to admit of a proper design. It would be a mistake for ihe Institute to adopt any standard until it could adopt a complete one.

5. Any standard of meters should contain not only a list of capacities, but also a list of the two important physical dimensions of the meters. These are the height of the meter, measured from the bottom of meter to top of screws, and the distance between the screws, center to center. In ordering, handling and setting meters, this information regarding physical dimensions is almost as important to a gas company as is a knowledge of capacities. A standard of meters which does not contain a list of names or designations for the different sizes is incomplete. Some briefer name than the figure showing the capacity is required.

6. An important reason why the Institute should not adopt the standard recommended by the Committee is the fact that the "A" meters, which have now been on trial for over two years, have proved successful and have already practically been accepted as a standard by many gas companies. "A" meters of different sizes have been made and put in use, probably to the extent of 50,000. The mere fact of the existence and use of these meters constitutes an important claim for the adoption of the "A" series of meters as the standard of the Institute.

The writer has presented to this meeting a report on the experience with "A" meters to date, and he believes that these meters with the 5-light meter should constitute the standard. Such a standard would be as follows:

Standard Gas Meters.

Name.	Capacity [1]	Height.[2]	Width.[3]	Size Screw.
5-light	100	16	11½	5-light.
5-A.....	175	16	11½	5 "
10-A	375	17½	13½	10 "
30-A.....	875	25	18½	30 "
60-A	1,800	33½	25	60 "
150-A.....	3,400	42½	32	150 "

The Institute, in adopting a standard, should not attempt to go into greater detail regarding the construction and design of meters than is contained in the table here given. In the nature of things, all meter manufacturers cannot be expected to construct meters, the details of which are exactly the same. As long as the capacity and leading dimensions are attained and adhered to, each manufacturer should be free to follow his own designs, and, in the long run, the best make or makes of meters will win out.

The writer takes this occasion, however, to urge upon the manufacturers, in the interest of simplicity, not to call any meter an "A" meter unless it has the capacity and dimensions given in the above table. If any manufacturer places a meter on the market which

1. See JOURNAL, Nov. 19th, 1906, p. 886.

1. With 0.5-inch differential pressure and a gas with specific gravity of 0.55.
2. In inches from bottom of meter to top of meter screw.
3. In inches from center to center of meter screws.

differs from these it would be advisable for him to adopt a different name, preferably some other letter of the alphabet.

The Institute should either adopt the standard of meters here described or postpone the adoption of a standard until a further trial is made of "A" meters.

Report of Progress on "A" Meters.—Made to the American Gas Institute, Second Annual Meeting, by Mr. William J. Serrill, Philadelphia, Pa.

At the meeting of the American Gas Light Association, held in Washington, October, 1904, the "A" meter was proposed in a paper[1] read by Mr. B. H. Spangenberg, of Philadelphia. During the discussion of the paper the writer promised that the United Gas Improvement Company would construct (say) 1,500 of the proposed meters, put them in use, and report on their action at a future meeting of the Association. It required nearly 12 months after the date of that meeting to complete the designs, and construct the meters. Consequently, this report of progress covers the experience gained with "A" meters, a few of which have been in use for a period of 2 years, but the greater number of which have been in use for a shorter period.

"A" meters of different sizes have been purchased, and are now used, by a number of the plants that are operated by the United Gas Improvement Company, but at only three of the plants is a sufficient number in use to make the experience with them of value. These are Kansas City, Mo.; Kansas City, Kas., and Philadelphia, Pa. In these cities there are now in use about the following number of "A" meters:

Kansas City, Mo	13,500
Kansas City, Kas	7,500
Philadelphia, Pa	2,000

These meters are of the type built by Messrs. Helme & McIlhenny and the John J. Griffin Company, of Philadelphia. The details have been perfected by these companies, in constant communication with the engineering staff of the United Gas Improvement Company. Consequently, the results given below refer entirely to this particular type of "A" meter. This explanation is made because it is well known that a number of meter manufacturers throughout the country have put "A" meters on the market. The United Gas Improvement Company has not tried these meters and has little knowledge regarding them. The only exception to this statement consists of the purchase of about 1,200 "A" meters from the Maryland Meter Company. These were of the same pattern as those made in Philadelphia, and are, consequently, really the same type of meter.

The "A" meters in Kansas City, Mo., have been principally started passing artificial illuminating gas, and have since been used with natural gas. In Kansas City, Kas., the "A" meters have been used mostly on natural gas from the start. The results obtained in these cities have been satisfactory; the tests of the meters are as good as those obtained with ordinary meters. For instance, in Kansas City, Mo., 1,339 "A" meters of all sizes have been removed for one cause or another, and tested during the last 2 years. These tests show as follows:

Average error of all "A" meters tested	2.2	per cent.
Net error of all "A" meters tested	0.48	" slow.

In Kansas City, Kas., during the past 2 years, the number of "A" meters removed and tested is 1,042. These tests show as follows:

Average error of all "A" meters tested	0.950	per cent.
Net error of all "A" meters tested	0.032	" slow.

These figures are very satisfactory.

In Philadelphia the number of "A" meters removed and tested is 475. These tests show as follows:

Average error of all "A" meters tested	2.54	per cent.
Net error of all "A" meters tested	2.34	" slow.

These Philadelphia figures are not what they should be. A thorough investigation has been made in order to determine the cause for the slowness of "A" meters in Philadelphia. In making this investigation, 25 "A" meters were selected which were known to be used at or near their rated capacity and which have passed since they were set a large quantity of gas. These meters were ten 5-A, ten 10-A and five 30-A. They were removed, dismantled and subjected to a careful examination of the working parts. This examination quickly revealed the causes of the meters going slow. These were the weakness of two of the bearings; viz., the hole in the short flag arm where it goes on the tangent post, and the hole in the bridge or king post, where the crank passes through same. In meters examined, these bearings show sufficient wear to account for the slowness disclosed by the tests. Arrangements are being made with the manufacturers to strengthen these bearings, and the writer has little doubt that when this is properly done, the "A" meter can be depended upon to hold its proof at least as well as the old type of meter.

It is interesting to recall that the weakness thus developed in the "A" meters is the very weakness that was to a certain extent predicted in the original discussion at the Washington meeting. It was claimed that the bearings in the meter were not strong enough to stand the increased strains brougbt about by the larger moving parts. The answer was that the bearings should be designed to meet the strains. Evidently, in the first attempt the bearings were not designed strong enough, but it is interesting to note that in the larger sizes of meters, such as 30-A and 60-A, where it was necessary to re-design these bearings, no such weakness has developed. An examination of the details of the figures of tests above given shows that in Philadelphia the 30-A and 60-A meters hold their test and do not show this tendency to run slow with use. The weakness is shown in the 5-A and 10-A sizes, the bearings of which were not re-designed, but were somewhat enlarged over the original type. There is no difficulty in making the bearings of these smaller sizes of meters sufficiently strong to sustain the wear.

At the present writing the exact construction of the strengthened bearings has not been determined. In the 30-A, 60-A and 150-A meters, the king post, or bridge, is made of brass; in the smaller sizes, it is of soft metal, and it is probable that a mere change of material will effect the desired result. The bearing at the end of the short flag arm it is proposed to strengthen by the use of a loose, case-hardened sleeve, fitting over the tangent post, the hole in the end of the flag arm being enlarged to fit over the sleeve. The investigations have further shown that the valves, or valve covers, of the 5-A and 10-A sizes can to advantage be made somewhat lighter.

On the whole, the writer believes that the "A" meter, with its largely increased capacity per unit of cost, marks a great step in advance in the measurement of gas. There is every reason to be gratified with the large measure of success that has attended the inauguration of these meters, and to believe that the modifications in construction now underway will render the success complete. There is no indication that any harm is done to the meter diaphragm by the increased work that it is given to do, nor is there any indication that the large valves and seats wear more rapidly, or are more apt to leak, than the smaller ones.

In view of the experience with "A" meters to date, it is difficult to see how any gas company could justify to itself the purchase of 45-light meters when it can obtain 10-"A" meters which will do the same work for less than half the cost. Again, how can a gas company afford to purchase 100-light meters when 30-"A's" of equal capacity cost about one-third as much? In a similar manner the 300-light and 500-light meters can be replaced by the 150-"A," at a greatly decreased cost. The economy in all of the substitutions is not confined to the first cost of a meter, as the decrease in weight and the decreased cost of connections are material factors. The abolition of flanged connections is in itself an important item of saving.

When the "A" meters were first proposed it was thought that if successful they would completely replace the old style of meters. Further experience has somewhat modified that view. It is evident that the 5-light meter is large enough to take care of the consumption of a large percentage of the gas consumers in every city, and as the 5-"A" meter, although of the same external dimensions, is somewhat more expensive to construct, it is evident that the 5-light meter will, and should, continue to be used in places where it is of sufficient capacity. Consequently, the modified standard schedule of meters, in the writer's opinion, should be as follows: 5-light, 5-"A," 10-"A," 30-"A," 60-"A," 150-"A." These six sizes will answer all requirements of any gas company. Further details regarding this proposed standard schedule will be found in the writer's discussion of the report of the Committee on Meters, which will form a part of the proceedings of this meeting.

1. See *Journal*, Nov. 14, 1904, p. 765.

Experience in Philadelphia with Dipping Diaphragms.

Prepared by Mr. W. A. CASTOR, for the Second Annual Meeting, American Gas Institute.

On September 1, 1907, there were 127,000 meters containing neutral machine oil—about 45 per cent. of the total meters in service. The system of introducing oil into the meters was started July 1, 1905, at our meter repair shop, and in the 6 district meter shops a year later. All meters are now oiled before same are put in service, and 150-light or over are sent to the repair shop for testing and oiling.

A ¼-inch hole is punched in each side of the partition on outlet side of meter, midway between the partition and front and back cases and ¾ inch above the bottom. The meter is drained if necessary, and a measured quantity of oil, as shown in the table given below, is poured into each diaphragm chamber through the punch holes.

In some meters the diaphragms are set by the manufacturers to clear the bottom of the meter. This clearance varies greatly in different makes of meters. When the meter cases are not removed, or the height of the diaphragm is not definitely known, it is our practice to place an extra quantity of oil in each diaphragm chamber to insure the diaphragms dipping in same, and then sweat in a round-headed, tinned rivet in each punch hole. These are then known as Class No. 2 meters. When the diaphragms are exposed and the clearance between bottom and diaphragm and bottom of meter is $\frac{3}{16}$ inch or less, a minimum quantity of oil is put in, and a flat-headed, tinned rivet is sweated in each punch hole. These are then known as Class No. 3 meters. Meters that have not had oil inserted are known as Class No. 1 meters.

The following quantities of oil are to be poured into each diaphragm chamber of Class No. 2 meters, or when making a meter Class No. 2:

Size of meter,	3	-light.	Quantity of oil,	20	ounces.
"	5	"	"	24	"
"	10	"	"	34	"
"	20	"	"	22	"
"	30	"	"	68	"
"	45	"	"	38	"
"	60	"	"	47	"
"	100	"	"	60	"
"	150	"	"	98	"
"	200	"	"	98	"
"	300	"	"	124	"

The following quantities of oil are to be poured into each diaphragm chamber of Class No. 3 meters, or when making meter of Class No. 3:

Size of meter,	3	-light.	Quantity of oil,	10	ounces.
"	5	"	"	10	"
"	10	"	"	16	"
"	20	"	"	22	"
"	30	"	"	32	"
"	45	"	"	38	"
"	60	"	"	47	"
"	100	"	"	60	"
"	150	"	"	98	"
"	200	"	"	98	"
"	300	"	"	124	"

Samples of the oil are taken from the shipments received and submitted to our chief chemist to be tested for acidity, viscosity and congealing point. There has been no trace of acid found in any of the samples submitted to date. The specific gravity of this oil is .87°, congealing point of 35° to 38° F., viscosity 1.9 at 100° F. Oil drained from meters brought in from service is not used again in the meters, as it contains more or less condensation.

The practice of introducing oil into the meters has resulted in a great reduction of the number of meters sent to the repair shop by the district shops. During the period covered by this report, the tests of all meters made in the district shops resulted in the sending to the repair shop of about 3 per cent. of the dipping and 11 per cent. of the non-dipping meters. As all meters will be changed to the dipping classes within a few years it is plain that considerable saving will be effected.

The non-dipping, or Class No. 1, meters removed from service, and proving within the adjustment limits, are not subjected to the slow-motion test until after the oil has been put in the meter. A careful investigation has shown that more than 50 per cent. of the slow-motion leaks on Class No. 1 meters will be remedied simply by the absorption of oil by the diaphragms. The diaphragms are undoubtedly preserved by the oil which keeps the leather soft and pliable at all times and protects it against the action of the gas vapors.

A recent examination of a number of diaphragms, which had been in the meters from 2 to 10 years previous to oiling, and from ½ to 1½ years after being made "dipping" diaphragms, showed the leather in each diaphragm thoroughly saturated with oil and no evidence of any injurious action due to the neutral machine oil. Diaphragms originally oiled with neutral machine oil, and which have been in service for 2 years or more, show no depreciation on examination.

An investigation, covering a period of several months, showed that the oil, when introduced into non-dipping, or Class No. 1 meters, removed from service, caused a marked change in proof after standing from 10 to 20 days after the oil was put in. Slow meters proved faster, and fast meters generally proved slower. This information enabled us to make a change in the "O. K." limit of error previous to taking off the top for adjusting purposes, thus taking advantage of the effects of the oil, thereby saving the expense of unnecessarily taking off the tops of a large number of Class No. 1 meters for adjusting.

A considerable saving is effected at the repair shop, due to the fact that it is not thought necessary to expose and examine the diaphragms of dipping meters received from the district shops, unless the tests warrant such procedure, while on the other hand diaphragms in non-dipping meters, which had been in service 6 months or more, were exposed, and in many instances renewed. We are thus enabled to save the expense of removing and replacing the cases and the frequent renewal of diaphragms, feeling safe in allowing the dipping diaphragm to remain in the meter until a test shows that it actually demands attention.

It is important that enough time should be allowed for the oil to saturate the diaphragms of Class No. 1 meters changed to Class No. 2, before making the check test after putting in the oil. Ten days is sufficient time for meters 10-light or smaller, and 20 days for meters 20-light to 100-light, inclusive. If longer time can be conveniently allowed for 60-light and 100-light meters, is is advisable to do so. It is doubtful if the oil will reach the top of diaphragms of 150-light meters or larger when the leather has been bleached and the pores of the leather are more or less choked up. Experiments are now being made to lift the oil to the top of the diaphragm of large meters by mechanical means.

The following comparison of proof of dipping meters as compared with proofs of non-dipping meters after removal from service, shows the decided superiority of the dipping meters:

Comparison of Tests of Dipping and Non-Dipping Meters.
(9-1-'06 to 9-1-'07.)

	Dipping.	Non-Dipping.
Number tested..	12,876	51,041
Average error .	1.6 per cent.	2.9 per cent.
Net error.....	0.77 per cent. slow.	1.5 per cent. slow.

The net error of dipping and non-dipping meters from July 1, 1905, to September 1, 1906, is as follows:

Dipping.	Non-Dipping.
Net error, .74 per cent. slow.	Net error, 1 per cent. slow.

The net error of dipping and non-dipping meters from July 1, 1905, to September 1, 1907, covering the entire dipping period, is as follows:

Dipping.	Non-Dipping.
Net error, .76 per cent. slow.	Net error, 1.3 per cent. slow.

The following shows the percentage by class of the total meters removed from January 1, 1907, to September 1, 1907, which tested within correct limits—*i. e.*, 1 per cent. fast or 1½ per cent. slow:

No. 1 (non-dipping	.....	33.4 per cent.
No. 2 (dipping).....	.....	66.5 "
No. 3 "	.....	68.6 "

The Class No. 2 meters may be safely said to compare with Class No. 1 meters, as to age of diaphragm and of meter. We may, therefore, expect that the results of the tests of Class No. 2 meters, as shown above, are what we may expect from all meters in the long run after reaching the oiling or dipping basis.

The following table shows the percentage of each class of meters removed and tested from January 1, 1907, to September 1, 1907, that was sent to the repair shop from the district shops:

67	per cent.	of Class	No. 1.
26	"	"	No. 2.
20	"	"	No. 3.

A like summary for the month of August shows:

67.0	per cent.	of Class	No. 1.
15.5	"	"	No. 2.
8.0	"	"	No. 3.

Our experience proves that non-dipping meters record within smaller limits of error, that diaphragms are preserved, that the proof of the meter remains fairly constant under all conditions, and that cost of repairs, formerly due to diaphragm troubles, has been greatly di-

minished. All the advantages claimed for the dipping of diaphragms in oil by Mr. John M. Rusby, in his paper read before this body last year, have been fairly realized in actual practice.

Statement Concerning the Experience of the Consolidated Gas, Electric Light and Power Company, of Baltimore, Md., with "Dipping Meters."

[Prepared for the Second Annual Meeting, American Gas Institute, by Mr. George Beadenkopf, Baltimore, Md.]

On January 3d, 1907, this Company began using, in its consumers' meters, "Dipping Oil." This oil being known commercially as No. 4 neutral machine oil—an oil free of acid.

The oil is introduced through two holes near the bottom of the meter, and an amount sufficient to allow the diaphragms to dip into it about $\frac{1}{16}$ of an inch is placed in each meter; the quantity for a 5-light meter being about 20 ounces, or 5 gills, where the diaphragms do not drag on the bottom of the meter. After the oil has been placed in the meters, and the holes closed with rivets (the rivet heads being covered with solder to make them tight) and before the meters are placed in service, they are set aside for about 3 days to see that no oil leaks out of them.

From January 3d, 1907, to August 15th, 1907, 16,766 meters have been oiled and placed in service, and of this number 304 have been removed for various causes. The average test for these 304 meters (some of them having been "O. K." meters), when they were set, was 100.69; when removed, the average test showed 100.72, 275 of the meters removed ranging between 98 and 102.

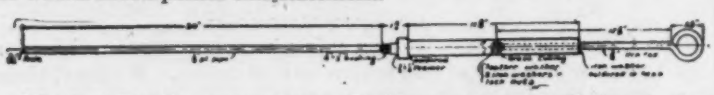
Of the oiled meters examined, which have been brought in from service, there have been no signs of bleaching of the diaphragms; whereas meters which have not been treated with oil frequently show signs of bleaching after several months' service. Of oiled meters which have been brought in from service and opened, and have been exposed to the air from 2 to 5 days, the diaphragms showed no signs of drying out or bleaching but remained soft and pliable.

The amount of oil and condensation found in meters after from 3 to 6 months' service, varying as to the location of the meter, has been found at about 25 ounces, an increase over the amount of dipping oil originally put in of about 25 per cent. This mixture will sometimes flash when passing a light over it. It has been the practice with meters brought in from service, to replace this mixture with fresh neutral oil, in all meters which have been in service 3 months or over.

One hundred and seventeen unoiled meters, which have been brought in from service and tested, and found to test between 99 and 102, were treated with oil and set aside in the shop for 10 days and again tested with the following result: No change from original test, 33; went faster than original test, 37; went slower than original test, 47; average of tests before oiling, 100.15; average of tests after oiling, 100.31.

In all of the meters referred to as having been treated with neutral oil, the diaphragms were originally oiled with the usual diaphragm mixture, viz., 2 parts sperm oil, 1 part rape seed oil, and 1 part neatsfoot oil; but a test is now being made of a lot of new meters, the diaphragms of which were treated with no other oil than the neutral oil, these meters having been in service such a short time that an examination has not been made of them.

Meters which have been oiled must be kept right side up and must not be handled in any other than an upright position, or nearly so. To avoid up-ending the meter when removing the condensation from its inlet and outlet pipes, a syringe or suction pump is used, a sketch of which accompanies this statement.



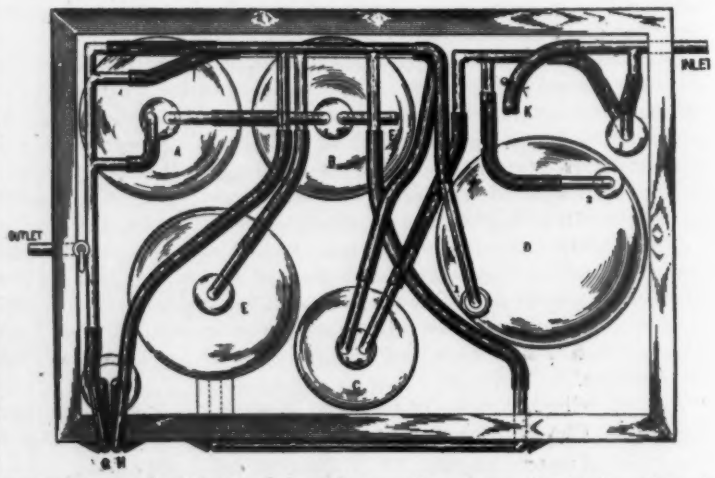
We find that the average cost of oiling meters of all sizes is about 5½ cents per meter, including all labor, supervision and material. The oil itself costs an average of about 2½ cents per meter.

A New Carbonic Acid Gas Indicator.

[Prepared for the Second Annual Meeting, American Gas Institute, by Mr. Charles D. Robison, Nyack, N. Y.]

Since the earliest investigation aiming to develop the most economical method of operation of water gas apparatus, it has been conceded that the production of carbonic acid gas must be kept down to a minimum and that any unusual increase of this gas is the surest indication that something is wrong in the method of operation. However, constant determination of this gas has not been an easy matter, particularly with the smaller works, that cannot afford the constant services of a chemist. There have been several indicators and recorders put upon the market, but they have been high in price, rather bulky, and require a considerable lapse of time from the moment the gas is produced in the furnace until the indication is given. Some months ago the writer's attention was called to a carbonic acid indicator that had just been invented by Prof. Jones, Chemist for the Metropolitan Street Railway Company of New York, to be used in connection with steam boiler operation. This was a comparatively small and simple affair, apparently easy to operate, and as its adaptability to the gas business immediately impressed me, one was at once purchased and set up at the works of the Company with which the writer is connected. It has met my expectations in every way. Indications were given in 40 seconds after the gas had entered the machine and in less than a minute after it had left the generator.

The cut gives a top view showing the interior, and the principle of



operation can best be explained by quoting from the instructions for using the ayparatus: "Two streams of gas to be analyzed are made to pass through solutions in two chambers at the same tension. The carbonic acid gas to be estimated is removed by absorption in one chamber and not in the other. This changes the tension in the chamber in which the absorption takes place. The tensions of these two chambers are made to oppose each other by connecting each with one end of a manometer, and the difference of tension of the gas in the two chambers is shown on the manometer scale, which is arranged to indicate the percentage of carbonic acid in the gas."

The method of charging the apparatus and putting it in action is a simple one. Pour carefully into the bottle *E* kerosene or coal oil of 150° fire test, until it shows on the indicating tube on the front of the box and stands exactly at the *O* mark.

Dissolve the contents of the package of sulphate of zinc in 34 ounces of water (this gives a solution of about 38° Beaumé gravity); fill bottles *A* and *B* with this solution up to the top of the mark. Remove the stopper from bottle *C* and fill to the mark with the oil furnished. Dissolve 2 pounds of stick caustic potash in 62 ounces of water, remove the stopper *D*1 and fill this bottle to the top of the mark with the potash solution. Then put 1 ounce of glycerine into the small bottle in the left-hand corner into which the tubes *G* and *H* are inserted.

The instrument is now charged, and, after standing to allow the temperatures to equalize, is ready to be adjusted as follows:

The small aspirator which is furnished with the indicator is connected to a water supply of at least 30 pounds pressure, giving a fairly constant flow of clean water to insure no stoppage in the aspirator and fairly constant suction on the indicator. This having been done, connect the suction tube with the outlet of the indicator. Now open the cock inside the box slowly until the air bubbles through *A* and *B* in a quiet, steady stream. After this has been running a few moments, the glycerine standing in this column will be seen rising in tube *G*. The height of the glycerine standing in this column can be regulated by increasing or decreasing the seal on tubes *A*2 or *B*2, by raising or depressing them. Next notice if the glycerine in tube *H* stands at the mark. If it is too high or too low, it can be adjusted by using tube *D*2 in the same manner as *B*2. When these two adjustments have been made, remove the clip from the rubber *F*, letting it rest on the brass tube. The oil in the indicating tube is now released and will probably stand too high or too low; this is again brought to the *O* mark by using the tube *C*2, but in the reverse manner. Depressing the tube lowers the oil and raising it brings it up. The apparatus is now ready for use and the box may be closed. It is important to note that the indicator should be situated so that no sudden change of temperature takes place within the box while this

adjustment is being made. The box should therefore be protected from sudden drafts of cold air.

Connect a ¼-inch iron pipe to to the gas inlet of the carburetor, carry it close to the indicator, and from there allow it to open out of the building. A tap is made in this pipe where it passes the indicator, and a small stream of gas through a rubber tube is taken into the bottom of a bottle which is open at the top. Into this bottle insert the tube leading from the inlet of the indicator; the purpose of this connection is that the indicator may not be subjected to the violent changes in pressure which take place in the generator when a change is made from a "blow" to a "run," and to allow the water which condenses from the gas to be collected in the bottle and not drawn into the apparatus. As soon as the gas from this bottle reaches the absorption bottle, any carbonic acid it may contain will at once be indicated on the manometer. The operation is now continuous, indication being given constantly.

In putting our indicator into operation, the following precautions to be observed were developed: "The indicator should not be subjected to excessive temperatures, as it would be if set too close to the generator or carburetor; neither should the gas taken into it be of markedly different temperature to that of the solutions in the absorption bottles, and great care should be taken to remove all particles of scale and grease from the water supply pipe, as they are sure to block the aspirator and give endless trouble. If any trouble develops in starting the apparatus, the action of the aspirator is the most fruitful source of trouble.

The financial loss caused by an excess of carbonic acid in gas is considerable. It is very possible to operate with 3 per cent. of CO_2 in the carburetted gas; yet the output from many plants contains 5 per cent. or over. The difference in the cost of oil between the 3 per cent. and 5 per cent. on an output of 100,000,000 cubic feet, would be at least $1,000, and this amount is surely worth looking after. The writer believes that the amount of carbonic acid produced at any time is the best standard by which to judge what is taking place in the generator, both while "blowing up" the "heats," or making "blue gas," and that an indicator making this knowledge constantly available will be of great value to the industry.

PROCEEDINGS, FIFTEENTH ANNUAL MEETING, MICHIGAN GAS ASSOCIATION, HELD IN BATTLE CREEK, MICH., SEPTEMBER, 1907.

First Day—Morning Session.

The first day's sessions were called to order by the President, Mr. Victor F. Dewey, of Detroit, Mich., who, after the transaction of a variety of routine business, read the following

INAUGURAL ADDRESS:

Gentlemen: It is a pleasure to preside over a convention that has for its consideration so many interesting papers and reports. The work of the Michigan Gas Association in the past has in many respects been a model for other associations of like character, for the work of the Association has not been confined to the reading and discussion of papers on the convention floor; and it is the pioneer in Gas Scholarship work of the State educational institutions of this country. It has continued that work, not only with ample means, but by direction and hearty co-operation.

Gas Scholarship.—During the past year, an experimental plant has been provided at Ann Arbor through liberal donations of apparatus and material. Special mention should be made of the liberality of the Ann Arbor Gas Company in providing building and grounds for the testing plant. This plant, equipped with further additions that will be made from time to time, will furnish facilities for more extensive work, and it is my hope that in the near future the Gas Scholarship students may take up the question of the proper treatment of coals of different grades, and open the way for the successful treatment of coals that at present are not considered first-class gas coals.

Coal Situation.—The present tendency of the price of gas coal is upward. This is caused by two things: First, the increase in mining rates; second, the increased demand for, and the decreased supply of, good gas coal. It has been estimated by United States geologists that, at the present rate of coal mining, the available coal supply of America will have been entirely exhausted in 200 more years. If this is true of the coal supply as a whole, what life can we expect of the comparatively limited field of gas coals? We must make gas out of other coal. Our source of supply must be broadened, else the price will soon become prohibitive. The proper place to look for the correct solution of this problem is in the work of the Michigan Gas Scholarship and undertakings of a similar character. The solution of the problem would mean approximately 20 cents a ton on every ton of coal carbonized in the manufacture of gas, or a saving of at least $50,000 per year to the gas industry of Michigan. In the prosecution of this work the gas companies of Michigan would see a direct return on their investment. It would offer a field for investigation which is much broader, and which entails finer engineering and mechanical ability, as well as training, than does the limited field which is at present included in the Michigan Gas Scholarship work.

Present Economic Conditions.—The gas industry, from an economic standpoint, is confronted at the present time by two opposite and oppressive conditions. The materials out of which gas is made—coal, oil, machinery, supplies and labor—have gone up in price, while the prices at which its products sell have gone down. The only exception to this is in the price of coke, which has advanced slightly. The only hope of escape from decreased profits is in increased sales. In the papers that are before you, special mention has been made of this feature of our business. The distinctive feature of the gas industry in the last 5 years has been the giant strides of the commercial end. The new uses to which gas is put are due to the splendid organized efforts of our commercial departments. Their work has been a twofold benefit to the gas companies: First, increased business; second, better service, which means in turn the creating of a better feeling in the minds of the public toward gas companies. The properly organized commercial department is one that first of all sees that the consumer is given the best of service; secondly, coins that good service into increased sales. In the past there has been altogether too little attention paid to good service. The public has attributed this to the supposed fact that, being a monopoly, we have not thought it necessary to compete for business, they knowing that the fundamental principle of competition is quality of goods. I am not so sure but that the public were in a measure right, and I am just as sure that the gas companies were correspondingly wrong. We have acknowledged our error by making a determined effort to secure new business and in doing this we have been shown the necessity of giving, as nearly as possible, perfect service. The commercial department has gone forward in its missionary work, and the rest of us have caught the fever of boosting for good service and larger sales.

I wish to recommend to your consideration the report of the "Committee on Prevention of Accidents." Accidents to life and property have been too frequent. Both are sacred, and every possible means must be taken to safeguard them. A full discussion should be had on this report. This matter was brought to your attention in the President's address of last year. Since then we have had more accidents on the railroads than in previous years. The causes for these accidents are numerous, but when analyzed to the last elements, show that inefficient or careless labor is at the bottom of them.

The labor situation is the most serious problem we have to face. Each manager, superintendent and foreman is daily brought face to face with increasing wages and decreasing efficiency. This condition has been favorable to the introduction of labor-saving machinery wherever possible. Even in the smaller plants this has been true. This in turn means greater liability to accidents. Without machinery accidents are rare, as it is in the careless handling and improper guarding of machinery that accidents generally occur.

I believe you will find that the committee on accidents have covered this ground thoroughly and have given us proper rules and suggestions for lessening the number of such accidents in the future.

Legislation.—During the past year there has been enacted what is known as "The Public Utilities Bill" for the State of New York. A large space of time has been taken by nearly all of our State Legislatures during the past winter in defining and discussing matters pertaining to the control of public utilities. It cannot be denied that corrorations, holding grants or franchises for the use of streets and highways, or given the right of eminent domain by the government, city or municipality, should be regulated. The extent of this regulation or supervision should be to insure good service. As the rates to be charged are generally fixed in the original contract that cannot be adjusted or changed, outside of the terms of the contract, except by mutual consent. It is right that cities should maintain intelligent supervision and inspection over their public utilities. It is our best interest that we should insist on such inspection and on a full report of such inspection. In the absence of such inspection suspicion is engendered. Politicians see an opening for the making of political capital, and usually make the most of such an opening. As a result,

an inspection is made with improper apparatus and under improper conditions, and on such findings and misleading deductions from such findings the company is attacked. Let us have inspection. No honest company fears it. Let us have competent inspection and let us demand constant inspection.

Progress.—The operation of vertical retorts on a large scale has been in successful operation in England and Germany for the past year, and fairly good results have been obtained. The introduction of silica block and tile in by-product coke oven work has gone steadily on and has given promise of much greater efficiency than firebrick material heretofore used. If successful in coke oven practice, why not in retort practice?

I wish to thank you for the honor and privilege conferred upon me of presiding over this meeting.

COMMITTEE ON PRESIDENT'S ADDRESS.

The address having been referred to a committee (Messrs. J. T. Lynn, Irvin Butterworth and B. O. Tippy), the President introduced Mr. Joseph R. Huntting, of Chicago, Ills., who read the following paper on

OBTAINING ALL-THE-YEAR-AROUND, ALL-GAS KITCHENS.

Being a commercial gas man, I was asked to write something upon new business methods or new business systems. Now, new business methods, salesmanship, etc., have been written upon very extensively, of late years, and very necessarily so, until one of our gas stove manufacturers, at a recent meeting similar to this, called a halt and exclaimed, "When is it all going to stop?" To which I would like to have replied, then and there, that perhaps less prominence would be given the subject when all or a large portion of the "operators" have become "commercialized," as had the one to whose very excellent article on "New Business Methods" we had just listened.

There is no question that the gas fraternity has of late years felt a great need of new business methods to meet strenuous competition, and this led some to go to such extremes as to believe, or at least to so express themselves, that the only hope for the gas business was by creating a new officer or department known as the commercial department, and, through this innovation, by too often the unwise rapid elevation of salesmen who knew little about the business generally, but who seemed to assume the position that they were "it," led to some friction. Now while that developed many very able salesmen who have done wonders in advancing gas interests, it eventually led to the very best thing that could happen, and that is the commercializing of the engineers and operating managers generally, which is a thing very much to be desired. When that work is entirely completed it will mean much, especially to small companies that can't afford to employ a "new business" manager and a "general" manager also. When we find the engineer and commercial combined in one man, we have reached the acme in a general managership.

I believe it is quite possible to commercialize all the technical men, whereas it would be impossible to make technical men of all the salesmen. Of course, in large plants we will still need the sales manager to give his entire time to teaching and training the soliciting force. I have heard papers read by commercial gas men which seemed to ask that all and everything should be placed in their hands, and that the engineers would find all their time advantageously occupied by attending to the manufacturing and distribution end exclusively. This no doubt was unwise, and I fear that some of the older men in the business have set back and waited to see the expected happen; that is, the failure of the upstarts. How much of their expectations have come to pass I will leave you to judge; but after all this leaven of commercialism has done its work most effectually. Not by making the best operators out of salesmen, but making the best salesmen out of operators. No harm has been done by the movement, but on the contrary, much good, and such was to have been expected when very much if not all the credit for starting the new business movement is due to one of the greatest gas engineers of the age.

In view of the foregoing, I do not feel like writing on new business methods for fear someone might say "when is this matter ever going to stop," so I will confine my few remarks to a phase or two of the faulty manner we have acquired by years of practice in the pushing of the sale of gas appliances for domestic use. As we have had many articles on appliances and fixtures, on their character and construction and where and how they should be installed, all of which have been most timely and helpful in teaching how the kitchen is to be properly lighted and heated and furnished with cooking and water heating appliances, I will not touch on those points at all, but would like to call attention to a point which I think has been the cause of retarding our business not a little, for in practice at least we have often kept the business from advancing as fast as it otherwise might.

I take it for granted that everyone present is engaged in an endeavor to educate the public to install and continuously maintain an "all-the-year-round, all-gas kitchen" in every house on the line of main. There is a long arduous task before a company that attempts this, but there is no doubt that it can finally be done; but, to accomplish it, much educational work must be done before we obtain the victory. All will say yes, to that, and that we are striving and have been striving for many years to accomplish this most desirable state of affairs. Yes; but the one needing this education most is the gas man.

I once witnessed a horse trainer doing some wonderful things with his trained horses, and when we expressed wonder, he replied that it was comparatively little trouble to teach a horse these tricks, but it was a long, slow process to teach a man to train the horse. We often talk about horse sense, so we may be pardoned for comparing our consumers with the horse; but the trouble is that we gas men have very much more to learn ourselves before we are competent to go out and successfully teach the people that an all-the-year-round, all-gas kitchen is the most desrable thing to have if one would have perfect housekeeping. It would be like carrying coal to Pennsylvania to tell this body of men such an installation is most desirable from the consumers' as well as from our own standpoint, but really how many of us have really and truly and actually practiced it ourselves. Then, if we do not believe how can we expect our consumers to believe? How often do we hear, one cannot overcome the condition of climate or nationality, etc. My answer to this is that it may be accomplished if, when we start out to sell gas ranges, we try to sell cook stoves and not simply gas stoves for summer use. If we would act just the same as any salesman does who tries to sell anything he may have, to supersede things that his prospective customers may have on hand, by showing them he has the best appliance for the purpose whether it is summer or winter, to accomplish this we must believe it and practice it ourselves. If we think nothing else, we will talk and act nothing else, and everyone will naturally fall into our way of thinking as they have followed us heretofore. Why we have gas managers and many gas men generally who do not practice what they preach. Have we the most up-to-date and every kind of gas appliance in our own houses? Then if we are afraid to spend money to install such appliances and set the example, how can we expect others to do so? If we do not use our stoves all-the-year-round and for everything they can be used for, how can we expect that others will? If we say "buy a gas range for summer use," what else can we expect others to do. Then too, gentlemen, as long as we practice hiring more solicitors in summer to sell stoves because it is hot, than in winter, so long will consumers refuse to "come our way" for we seem to be paying men to teach them that the gas range is for summer use only. We also pay men to procure store and house lighting, while we leave our own house and store and office comparatively dark. Let us go out and sell cook stoves in winter and hang gas arcs in summer just same as at any other time of the year, on the merits of our goods; for if they are good at one season of the year they are good at all seasons.

This last spring and summer should have taught us how disastrous it is to "wait until spring" or hot wheather to put in our stronges t efforts. I have in mind a gas company which last fall doubled, yes, trebled, its soliciting force and then commenced a strong canvass for gas ranges, and when in the middle of winter they started after the goods, they "landed" in a few weeks 95 per cent. of the 12 months' business, and had all their orders installed before the people knew whether it was going to be a cold spring and summer or not. These men worked as hard in winter as we have heretofore worked in summer, selling the appliances at the time of the year we have been in the habit of feeling it was impossible to take orders.

Then, gentlemen, if we wish to realize our dream of an all-the-year-round, all-gas kitchen installed in every house on line of main, we must not discontinue our work of solicitation in the fall. Let us obtain or make good solicitors and keep them. Keep on paying them more and more every year as they become more valuable to us. Do not let them go to someone else who will pay them that increase, after we have been to the expense and time of training them. Two good men the year round are far better than four or even six for the summer only, who, knowing their position is not steady, often mislead and misinform our customers and when the trouble comes are not on hand to stand for it. Do not be afraid to have it known that we pay

the highest wages for the best men and so keep them, for the longer we retain them the more reliable they become, and the more reliance is placed upon them by those from whom they solicit. We must show the people then by our practice both in the use of the appliances all-the-year-round ourselves as well as in the employment of the right kind of men to solicit the sale of cook stoves, that they are as valuable in the woman's house in December as in July.

Discussion.

Mr. Shacklette—Mr. Huntting says we must keep our solicitors all the year round to acquire all these gas kitchens, and I supposed the time had long passed when any gas company in Michigan did anything else. It always seemed to me our solicitors were busier in the winter doing things they thought they had not time to do in the summer, than they are in the summer, when soliciting new mains and gas ranges. The coke burner recently put out by a couple of manufacturers should help us acquire these all-the-year all-gas kitchens. I think the title of the paper is unfortunate. I would rather have seen it all-the-year-round all-gas homes, and some of the gas companies in their enthusiasm for gas ranges, arc lights, etc., overlook this domestic feature. On starting you should lay in a nice line of gas shades, burner globes, etc. The electrical man says he cannot afford to design for all these feeders, because he does not have call for them, and it must be gas; but gas companies are not pushing them, or do not succeed in some way. I believe in supplying gas in front as well as the back of the house, in fact all over it, and I would like to take this opportunity to protest. I understand that the Welsbach Company are putting out a new burner with a special size of shutter, but it will be a long time before we get any of the lighting in the front of the house. It goes to the electrical company, and we should have our share of it. We propose to go after the all-the-year-round gas home by putting a burner over the gas range. They don't need to pipe their houses until they are sure they want it. A man came into our office in Adrian to say he wanted his house piped - he was tired of sitting in the kitchen reading his evening paper—yet that man's house was wired throughout for electric light. We should push gas heaters, curling iron heaters in sleeping rooms, bath rooms and wherever handy. All these devices swell the volume which goes through a meter which is already installed.

Mr. Tippy—While Mr. Huntting was reading I thought of cases where in the winter they take out the gas stove, and substitute a coal range. After the latter is up does not seem to me the right time to put all our energy trying to sell them an all-gas kitchen. Rather the time before they take the range out. Right now in Grand Rapids we are devoting most of our time advertising to put on a coke attachment, to get them on before the gas range is replaced by the coal range. The reasonable time to get after them is in the fall and winter, when people who are thinking of using more lights are willing to spend money on it. The time to get the all-gas kitchen is in the summer when they are buying new stoves. Sell them a good one; call their attention to the fact that they want good ones, and in the fall rather than in the winter. Of course, we have solicitors all the year round who make a house-to-house canvass. They do not neglect any of the work, but they talk the all-gas kitchen and all-gas house to every house they go.

Mr. Butterworth—Has anybody experimented with this coke heater and gas stove? or with the combined coke and kitchen heater and gas range? I understand there is such a device. The Detroit Stove Works, I understand, are getting out one. Have they sold any, or did they sell any last year?

Mr. Eaton - We have set one up in our shop, and put a fire in it. We saw how well the fire is kept, watched how it acted, and got some idea of the heat given off. As the room it was in was a large one, we could not tell very well how it would heat. We could not tell what temperature it would make in that room, or how much fuel it would use economically.

Mr. Butterworth—Would it not be a good scheme to equip it with a gas kindler.

Mr. Eaton—When Mr. Van Wie told me about getting out this heater, I suggested to him the inserting of a Bunsen burner in the base of the stove, and was told the reason that had not been incorporated in the design was it would add 75 cents to $1 to the price. They wanted to make it as cheap as possible. Some of our fitters who saw this heater the first time it came in went right to work on a burner to attach to the heater. They took the heaters home, and tried them there. In furnaces we put a ¼-inch opening near the furnace, bring the light down and make a long Bunsen, then start the coke fire in the furnace.

Mr. Douglas—We sold three or four coke burners last winter; they were used all winter and were satisfactory. They did the work and heated the kitchen, but I do not think that is the proper place to get the all-the-year-round-gas-kitchen. I think we ought to go to the furnace. Very few furnaces or boilers won't stand the additional heat that the kitchen requires, especially if the heater is a hot water tank, as put in the kitchen and connected with a coil in the furnace. That will go a long way toward heating a kitchen, and the cost in fuel is not in excess of the coal used for heating kitchens. They have something that is always right, and requires no attention. I had about forgotten that gas stoves are not used all the year round. I believe 10 per cent. of our stoves are not doing business 12 months in the year. Ann Arbor happens to be a furnace town, and all the houses that have been built within the last 10 years have been arranged to heat the kitchens from the furnace. We tried to see everybody and tell them they ought to do that. It is easily done when a house is built.

Mr. Butterworth—If the boiler itself is not equal to heating the kitchen, it is easy to attach a little coil in supplement.

Mr. Hellen—About a year ago we took up the question of getting all-the-year-round business and found in the winter months very little gas was used for cooking. A year ago we started for that business. We guaranteed to heat the kitchen, take out the coal or wood stove, and the cost of gas for cooking would be less than for coal. Where it was necessary we put in a radiator, costing $8.50. Where it was not necessary to do so, and was heated from the furnace, we put it in at $5. The result was that, between last fall and this spring, we put in something like 700 of those; out of which I think we had to remove 4; some of the stoves we took out had been used only 2 or 3 years, and they had paid as high as $70 for some of them. Several we removed were advertised in the papers: "One large coal (or wood) stove for sale, replaced by a gas stove and heater from the furnace." The cost of installing is $18. That is actually what it cost us. As I say, we placed about 700 of them at $5 and $8, but now we have raised the price to $15 where it is not necessary to have a radiator, and $18.50 where a radiator is installed. In going into this it does not pay to go at it too rapidly. There are a great many places that it does not pay to put in this particular kind of heat I speak of, for a great many people live in the kitchen and do not keep the furnace going. Again, where the cellar is very cold, you should cover the hot water pipe. We have had a very gratifying experience of it there, with the result that the plumbers are advertising it and the architects are putting it in their specicifications.

Mr. Woodbury—I would like to hear further about that coke attachment. I think it is a very valuable thing if it is found feasible.

The President—Mr. Douglas, of Ann Arbor, claims to have used 4.

Mr. Ewing—Mr. Eaton spoke about making the stove a little cheaper, and Mr. Huntting, on the second page of his paper, speaks about the construction of a stove. I think that is about as important a matter as a gas company has to deal with. Many of the men who furnish the money have come to the conclusion that gas ranges were sufficiently well known and are such a necessity that it is not wise to spend much money to get that kind of business. One thing a company can do to improve its condition is in the kind of stove it sells. How many of us know what is offered when the dealer gives us a stove at a price? I think the man trying to sell something at 50 cents cheaper is not the man that we should look for. We had occasion to compare possibly half a dozen makes of stoves last year, and were surprised to find that stoves, reported to be high grade, were being made of stovepipe iron, the ovens being made of 28-gauge steel. I think I am not mistaken in saying that is less than half as heavy as 22-gauge, and I think 22-gauge is light enough. I think the all-gas kitchen, with the gas man, is something like the shoemaker's children. They probably always have cheap shoes; and we think so much about the good stoves and what other people should have that we forget what we should have ourselves. I think the gas company should in some way say what kind of a stove should be sold. In regard to working all the year round, I think the time has come when the gas company commences to realize it can afford to have all-around men for an all-the-year-round season. A man can keep just as busy in the summer time as in the winter time, and there is just as good a prospect in the fall as in the spring. As to the lighting business, there is no time that a consumer is not a prospect, unless he has all the light he can use. A few good men will show better results to the company all the year round—that is, good representatives—than many men seasonably. I think Mr. Huntting is correct when he states that many companies in Michigan are seasonable with their work. We have a great many opportunities to let good men go to some company wanting a good man for a few months. His expression that we should have good men all the year round is one that we can afford to take to heart where we are responsible for the results.

Mr. Murray—I believe to a certain extent the fuel business is procurable all the year round; but there is a reason for everything. You can buy peaches in winter, but it is not everybody who wants them since the price is too high. Of course, that does not apply to gas ranges, but I believe we should spend our effort where it will bring us the greatest result. I know I can sell more gas ranges in May than in October, December or January, because the big argument we have is "Heating up the kitchen in summer."

The President—I would like to ask, from the consumer's point, what is the advantage of having a gas range with a coke fire attachment to it over the old coal stove?

Mr. Eaton—The average home that has a coal or wood range in the kitchen is a home that has no furnace. The coal stove is for the front part of the house, but they depend upon the kitchen range to heat the dining room and kitchen. Ordinarily those homes are not very large and the kitchens are small, and if you put two ranges in the kitchen there is no room to do anything else. One stove or the other must be removed at different seasons of the year, especially where we are getting new business on the outskirts of the town, where the laboring man lives, who has a daily wage only. To overcome this and to save him buying two ranges we offer this coke attachment. It is very successful for getting heat in winter for his kitchen, and he will use the gas range all the year round because he has nothing else to cook with. That was demonstrated the past winter. A particular instance was brought to my attention where, during days not very cold, people having coal ranges to heat the rear part of the house would not let the fire

entirely down and used the gas stove. In a number of instances people told me it was big enough to have one stove do all the work. The coke attachment for the small kitchen and for the man who is a wage earner with a small home I think would be a very big success.

Mr. Frazer—The most important point to the consumers is they can actually cook with gas the year round and heat their kitchen in the winter with the coke heater for less money than they are paying for using a cooking coal range. We demonstrated that in the last few months to the satisfaction of many prospective customers, and we were very much surprised at the rapidity with which they have taken hold of it. It is an actual fact, as near as we can ascertain, that the customer can cook with gas the year round and save money by doing it. Every woman would rather, of course, cook with gas all the year round. The only reason they do not cook with gas in the winter, as Mr. Eaton says, they must have something to heat their kitchen and dining room. That is the only reason they keep their coal range; but with the coke heating attachment, or the old round Oak stove, that we can sell for about $8, they can heat the dining room and kitchen, and the fuel they burn, plus gas they use in the kitchen for cooking, does not equal what they have been paying in the past for hard coal. We have sold in the neighborhood of 50 coke heaters in the last 4 or 5 weeks, and one of the hardware companies has sold a great many for fall delivery.

Mr. Lynn—Can you do part of of the cooking with the coke, or do you have to do all your cooking with the gas and burn coke besides?

Mr. Douglas—The greatest objection is to the coke heater. There are two holes on top that replace the gas burners whenever the coke is going. If they were made so that they need not be used, it would be better.

The President—Any further discussion?

Mr. Huntting—In view of all said, I must agree with all the gentlemen so far who have spoken. I did not intend to take up the entire time of the convention by stating how to heat the kitchen, or how to keep the gas in all the year round. I presumed the gentlemen knew how to do that; some one way and some another. In one part of the State it could be done in one way, while in another it would have to be done in another. If I were left perfectly independent and were entirely responsible to myself and no one else, there would be no coke heaters in a kitchen; but there are exceptions to all rules, and some of you gentlemen have had experience with this coke heater. I have, and have found it satisfactory to the consumer. We put out a number last year as sample orders, 5 or 6 in each of our companies, and they have all been satisfactory. On the other hand, some of our companies have more coke to sell than gas, and they want to get rid of the coke. If they want to use a coke heating attachment for that, well and good, but my idea is we must get a gas range in the kitchen all the year round. Most people want a round top on it, so that the good woman can heat, possibly, a pot of tea. I don't know whether that would pay or not. You have the furnace attachment that has been spoken of. You can have a hot water heating range. There are lots of ways to heat the kitchen, but the thing is do not let any cooking be done in that gas kitchen without the gas range being there. Do not shake and tremble the first time it is a cold day, and say we cannot sell any more gas ranges this winter? Someone said we can sell as many in October as in May. I know of one case where the company sold more in January than in any other month of the year; they have it 20° below zero in that State many times during the winter, and plenty of hot weather during the summer. Why do they do that? Because, as the seller said, he went out and canvassed all winter long and got people to buy a gas stove. Why do we wait to put in a gas stove in the spring, when the woman of the house says, I have house cleaned and do not want to tear it up again, so wait until fall. Of course, the gas man has gone off, and when the weather gets cold he does not go near them. He says, if I go around the last of December, January or February, they will say it is too cold to put in a gas range. Wait until warm weather; but has anybody in Michigan found any warm weather yet? Where I was in Michigan last Thanksgiving Day there was 3 feet of snow, and it was my first experience in the State. If we believe in it and practice it ourselves, if we carry it out all the time and for everything, it will bring about the result, but not in a day or a week or a month. I am led to suppose, from what I have heard here, that every gentleman represents a plant that has already accomplished this all-the-year-round all gas kitchen. I have heard no one admit he had not. Someone was surprised to hear there was any possibility of anybody in Michigan not having a house with an all-gas kitchen. We can get this only by education, and we must do it ourselves. I would not want to tell you what I have heard general managers say about their own appliances, because you might possibly pick out some of them and it might not be the one that I mean, that I was talking with. We have to practice it, to preach it, to talk it, and we have to live it. If I may be pardoned, it is, I believe, like religion. If you ever want to get anybody to practice religion you have to show them somebody that is living up to the principles of religion, and not someone who is not. Any solicitor not using gas to the full need not talk to a customer about putting in an all-gas kitchen. It is just like tke gas company that says: "Hang out arc lights in front of your business place; it draws business." Yet it has none in front of its own place of business. You say, put lights all over your office, your factories, your workshops, and yet you have none in your own plant, or in your own workshop, or in your own office. It may be these gentlemen who do that are not here, because, as I sometimes say when talking to the ladies who are attending cooking school: "I see before me all the good cooks in this city." And it is the truth that the best cooks attend the cooking school, and it is so too, that the best gas men attend the gas conventions. If my voice cannot reach those who discharge their solicitors the 1st of July, perhaps the JOURNALS will. In the place I previously mentioned, where it was 34° below zero, and the ice was on the ground, we took orders for 95 per cent. of all the gas ranges that were sold in that town, and more ranges were sold than any other year in its previous history. It can be done, if we believe in it ourselves, and that is all I ask of you. Not that you go home to-day and put in a gas range, water heater, etc., in your kitchen to-morrow, but that you live up to this idea, preach it, talk it, think it, and insist that everybody around the company acts along these lines.

(To be Continued.)

Show Window Gas Arcs.

[Prepared for the JOURNAL, by "R."]

A great field for the employment of lights in show window advertising has been developed through utilizing individual lights in objects. For example, in one store window where an attractive pond scene was laid out—the floating lilies on the surface of the water were provided with a jet each for making a little gas light in a white globe. The sparkling effect on the water was exceedingly attractive. In another window in which had been placed a representation of a London street scene at night, gas arcs were used in miniature to light the corners in the important points of the picture. I also saw some small sized imitations of electric light signs employed for representing signs on buildings in the view in the window; but the most beautiful effects are obtainable in the floral presentations. It is possible to put in palms or imitations thereof and adjusting one or two lamps in the leaves to send forth the brilliant rays. The reflection is always pleasing and attractive. There are ample opportunities for the display of the show window lights in connection with merchandise on sale. A furniture store, for example, utilizes the light something after the pattern shown in Fig. 1. The hat stand is shown in the window, and attached thereto are the fixtures for conveying the gas to the pipe *B*, thence onward to the burner in the globe. The rays of light are distributed thoroughly about the premises. Instead of a series of lights for an entire window, there is a special light for the one article. I saw some very striking effects produced in this manner. A good sized show window is dulled or gloomed with colored shades; that is, a green, blue or other colored lamp globe causes the light to assume the hue of the glass. Then, in the midst of the volume of tinted light, one or more white lights are adjusted, producing a bright spark effect in the entirety.

Quite a field for operation is opened for the designer who can establish his special lamps at various points. I observed that a dealer in furnishing goods placed a number of palms in pots in the show-window, and the window was freely supplied with articles for sale. The object of the owner of the store was to draw notice to the display of funishing goods, and had planned new arrangements and tried many ways to get a novelty to catch the eye of the hurrying passerby. Then he put in the three palms, arranged in pots as illustrated in Fig. 2. The stem of the palm covers the projecting gas pipe as the latter ascends from the base of the show-window towards the cluster of leaves above. At the top the usual form of gas arc on a moderate sized scale is used. It is marked *F*. The light is thereby shed thoroughly over the plant and about the window, and the effect is far more novel than when the lamps are set in rotation on a line by themselves in the window. In the setting of the gas arcs for show-window advertising purposes, the aim is to get a very irregular distribution. One light may be at an extreme corner and another in the center. I also notice that the boot and shoe dealers are adopting the individual light system for some of their notable goods. That is, if they have a special design of shoe to put out a separate lamp is designed and adjusted, as represented at *G*, Fig. 3. The lamp is often placed on a rod fixed inside the shoe; oftentimes it is placed on the toe, and in fact I saw some lights arranged on the instep.

Dealers in candy find a good opportunity to arrange attractive exhibition windows with the gas arcs reflecting on the colored candies. Tinsel and drapery of a glistening order are arranged in the window. The brilliant lights reflect the shining surfaces back-and-forth, and a pleasing picture results. In some cases kegs of candy are piled in the window and the arc light is adjusted to the top kegs. Again, long sticks of candy were piled in log-heaping fashion in one window, an arc light of small proportions swinging in the hollow of the pile. The light reflecting through the colored candies made a novel picture.

Furniture dealers, too, find excellent use for the separate arc light plan in the display of large pieces of furniture in exhibition windows. The space occupied by large pieces of furniture is such that, with the common mode of lighting, numerous shadows are produced in the

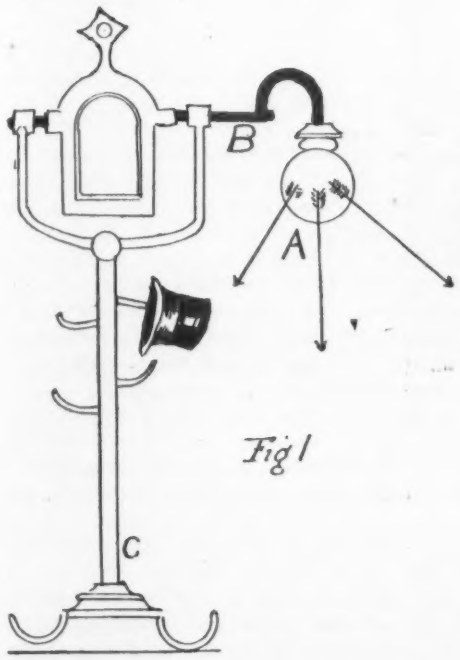


Fig 1

Fig 2

Fig 3

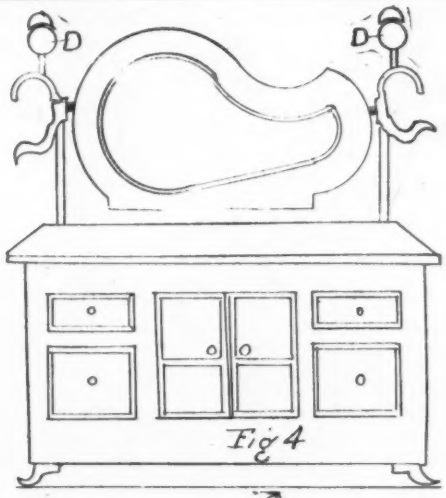


Fig 4

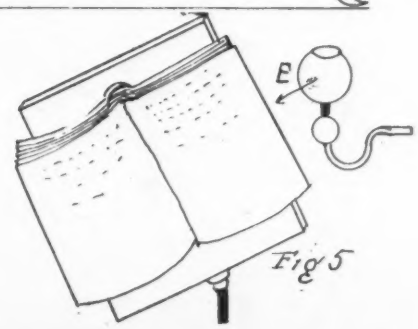


Fig 5

show-window, to the detriment of the goods there displayed. Therefore, some of the furniture manufacturers and dealers employ the method shown in Fig. 4. The two arc lights are fitted to the edges of the bureau, as shown at *D, D*. The lights are kept burning all the time. In fact, even in the daytime, unless the sun is bright, the lights are giving forth the rays. The lighted bureau or dressing stand is a very useful article for advertising purposes in stores. I noticed that persons stopped on the sidewalk in front of the stores to observe the lighted effect.

The application of the lamps to the clothing trade is also practicable, for I have inspected liberally lighted windows, individual lamps being attached to dummies wearing clothes. A light with a colored globe secured to the upright of the dummy figure makes a good effect. The use of gas arcs in hat stores is also apparent. Hats, which may be of special design, or that may be worthy of special publicity, are supplied with the light of the lamp. A plug hat having one of the little lamps on the rim is a novelty. Sometimes the lamp is fixed on the front, like the miner's lamp. Lights are used in the glove store and in the grocery business. The enterprising grocer finds that, to light up his special brands of goods, means business will be duly increased. I noted that one grocer had hollowed out several squashes and placed lights within, cutting designs around the sides of the squashes through which the light penetrated.

In a certain bookstore a separate light was arranged so as to cast the light upon the pages of a book, as in Fig. 5, at *E*. The field in this direction is large, and is quite ready for working by the alert canvasser.

Time-Motion Recorders for Gas Works.

Herewith is shown a novel instrument for recording continuously in ink the time, rate and extent of motion of an object, which is being put upon the market by the Bristol Company, of Waterbury, Conn. The motion of the object to be recorded is transmitted to a pen, after being properly reduced, through an adjustable lever. A chart for receiving the record is revolved by clockwork at a uniform speed, generally one revolution in 24 hours.

Fig. 1 is a photograph of this instrument, as used in one of the plants of the United Gas Improvement Company to record fluctuations in height of a relief holder, and Fig. 2 is a reduced record for 24 hours, April 21, 1907. A wire attached to the holder runs over the shaft of a pulley from which a wire drives the shaft of a second pulley, etc., until the maximum travel of the holder, as reduced, is proportional to the scale of the instrument. These wires are kept taught by weights, as shown. Any means, however, of reducing the motion to be recorded so that it amounts to less than 5 inches at the instrument is satisfactory.

The chart will then show the time and amount of every fluctuation

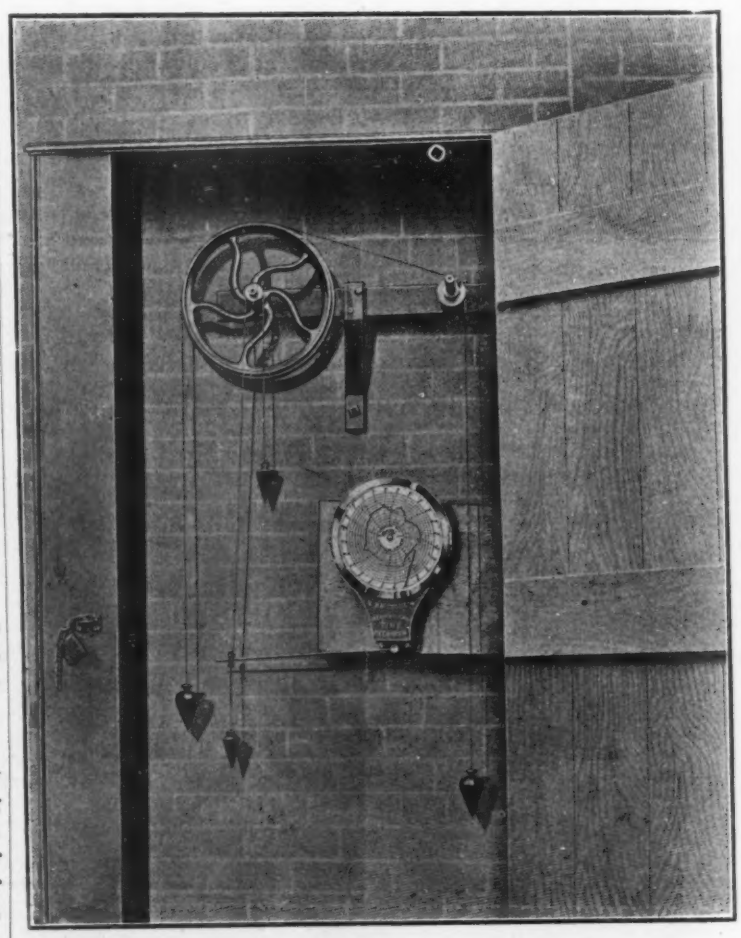


Fig .

in height of the holder and whether it was allowed to go dangerously high or low at any time, day or night. The instrument, besides forming records valuable for observation and reference, can be used as a further safeguard for the relief holder if equipped with electric contacts which make battery circuits to alarm bells or relays at any point in the plant when the holder rises above or below safe values. This feature should absolutely prevent the blowing or grounding of holders.

The instrument may also be used to record the volume of gas in cubic feet in the holder, if the chart is read by reference to a calibra

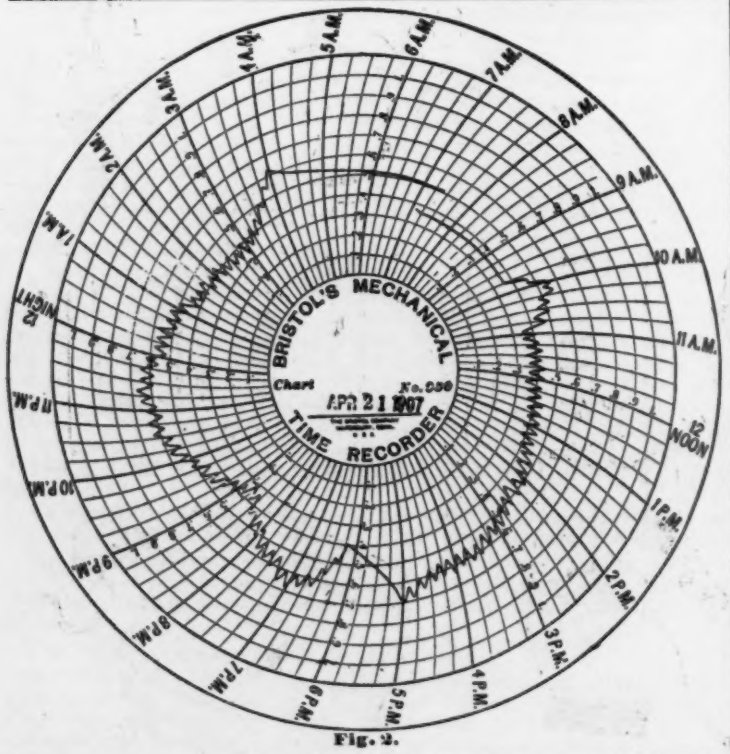


Fig. 2.

tion curve of the holder. The chart, however, can of course be garduated to read direct in volume for any particular holder.

Another interesting application is the recording of time of movement of valves on water gas sets. A glance at one of these valve motion charts shows the slightest irregularities of operation.

A Jeffrey Mfg. Company Switching Locomotive.

The accompanying illustration gives an excellent view of a 25-ton switching locomotive built by the Jeffrey Manufacturing Company, Columbus, O., for use in handling freight cars for the Cerveceria Cuauhtenoc Brewery, Monterey, Mexico. This locomotive takes the same electrical equipment as does the mine type, the only changes being in the side and end frames and the addition of a platform and suitable cab to accommodate the conditions incident to surface work.

The motors are of the waterproof, steel-frame type, having drum-wound armatures, laminated pole pieces, oil lubrication with auxiliary grease boxes and liberal wearing surfaces.

These locomotives are built in sizes from 10 to 30 tons, with 2 motors, and in larger sizes with 3 and 4 motors, arranged with rigid frame, or with double trucks having flexible wheel base, depending entirely on the conditions.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

THE Michigan Stove Company's mammoth works and factory in Detroit, Mich., were destroyed by fire the second week of January this year. The restoration - in fact the reconstruction thereof - has been completed for some time. Indeed, 9 weeks after the fire 252,000 square feet of floor space in the new buildings were covered with workingmen, machines and material. Now, however, the proprietors are "pointing with pride" to the "greatest stove works in the world."

AT the instance of Mayor Adamson the project for constructing a gas plant in Paulsboro, N. J., to be operated on municipal account, has been put over indefinitely. Cause, inability to borrow money on anything like a fair rate of interest.

THE Windsor (Ont.) Gas Company, in consideration of an ordinance adopted by the City Council granting the Company exclusive rights (including any attempt on the part of the city to go into the gas lighting business) in the city, has agreed to sell gas at the net rate of $1.10 per 1,000 cubic feet.

A MR. J. D. FORREST has been chosen permanent Secretary of the Citizens Gas Company, of Indianapolis, Ind., at a stated salary of $2,500 per annum. He is to assume active charge January 1, 1908.

THE street lighting service carried out under contract between the authorities of Amarillo, Tex., and the Amarillo Gas Company is giving every possible satisfaction to the residents. The lamps are of the boulevard pattern, and the burners are of the Welsbach type.

AT the hearing before the Massachusetts Board of Gas and Electric Light Commissioners in respect of the application of the Malden and Melrose (Mass.) Gas Light Company for permission to increase its capital in the sum of $275,000, no opposition was offered. The Company's case was most convincingly put before the Commissioners by its Vice-President, Mr. F. P. Royce.

THE proprietors of the Washington (D. C.) Gas Light Company have applied to the authorities to increase its capital stock from $2,000,000 to $10,000,000.

MR. JOHN R. JOHNSON, for quite some time in the employ of the Utica (N. Y.) Gas and Electric Company, died at his home in East Utica the evening of the 3d inst. He was in his 33d year, having been born in Utica, December 9th, 1874.

THE new buildings of the Beaumont (Tex.) Gas Company have been completed. When the machinery has been set up the generating capacity of the plant will be just twice that of the sets that were all but put out of commission in the explosion and fire that so badly damaged the plant early last spring.

MR. JOHN W. ELLIS, President of the Providence (R. I.) Gas Company, has been named as the second member of the Commission on Arbitration who will decide the sum deemed fitting compensation that the Woonsocket (R. I.) Street Railway Company must pay for its occupancy of the streets thereof for the last 10 years of its franchise.

MR. GEORGE C. HIGGINS, of San Francisco, and associates, are proposing to construct a gas works in Newark, Cal.

A CORRESPONDENT forwards the following figures taken from the 59th annual report of the Directors to the shareholders of the Consumers Gas Company, of Montreal, Canada: The output for the year ended September 30th, was 1,773,588,000 cubic feet, an increase for the twelvemonth amounting to 15.34 per cent. During the year 19 miles of additional mains were laid, bringing the total mileage up to 337, and 5,189 new services were placed. The gas rentals for 1907 were $1,229,585.11, an increase for the year of $92,700.31. The amount of profit and loss account for 1907 was $523,666.67, while in 1906 it was $513,000. The balance carried down in 1907 is $455,360.49, and in 1906 $309,952. The amount written off in the past year on the plant and buildings renewal fund was $199,689.30; in 1906 the amount was $179,653. In the statement just issued the "gas accounts receivable" come to $215,955, and last year these amounted to $191,000. Owing to unexpected delays the new works will not be completed till next season. To meet the expenditure on new works and extensions the Company will offer for sale at public auction on December 12 9,000 shares of new stock of a par value of $450,000.

It is understood that the Georgia State Railroad Company is about to issue an order requiring all the gas and electric light companies of the State to report to it respecting the details of their business, including charges for depreciation, physical condition of the works, etc. The main scheme for the reporting is along the lines of the tabulation put out for the Southern Bell Telephone Company.

"F. B. M.," writing from Omaha, Neb., under date of the 9th inst., incloses the following: "Suit was instituted this week in the United States Circuit Court, Deadwood district, against the Lead-Deadwood Gas Company on behalf of several Eastern bondholders for the collection of interest on the bonds held by them. It is charged that interest has not been paid since the bonds were issued. The defendant avers that it has been obliged to make some extensive and costly improvements and this, in addition to the high price of coal which they had to ship in from Colorado, had put them behind, wherefore the default. It was the original intention of the Company to secure its coal from Newcastle, Wyo., but the quality of gas manufactured from this coal was found unsatisfactory. Officers of the Company state that they are now in a position to furnish their product at a fairly economical figure and believe that the suit can be settled."

Mr. David S. Schurham, the architect in charge of the task, has virtually completed plans for the handsome office building which is to be built for the Rockford (Ills.) Gas Light and Coke Company on the site of its present establishment at Wyman and Mulberry streets.

Messrs. R. D. Wood & Co., of Philadelphia, have promised that the 2,000,000 capacity gasholder, now under construction by them for the Oakland (Cal.) Gas Light and Heat Company, will be in working order by January 15th.

The Board of Gas Trustees, Wheeling (W. Va.) municipal gas plant, recently named the following employees: Secretary, Henry Bell—who succeeds William Schenk; Superintendent, Francis Thompson; Auditor, A. Edward Higgins.

Mr. J. E. D'Alemberte, of Mobile, Ala., has been appointed Manager of the Gulf Coast Gas Company, Biloxi, Miss. He succeeds Mr. W. H. Harrison, Jr., who proposes to apply himself altogether to the management of the plant at Bessemer, Ala., now in course of construction.

The daily output of gas from the plant of the Marquette (Mich.) County Gas and Electric Company, during the month of October, amounted to 75,000 cubic feet, and the gross capacity of the works is but 100,000 cubic feet—the going increase is virtually at the rate of 15 per cent. each 30 days.

Messrs. W. S. Lee, Jr., and L. C. Harrison, prominent in the management of the legal department of the Southern Power Company, are before the City Council of Rock Hill, S. C., for a franchise under which they may construct and operate a gas plant there. The application will be considered formally at the Council's meeting in mid-December.

"Supt. Bixby is breathing easier and resting longer nowadays, and nights, since the completion of the emergency plant of the water gas type recently completed for the Springfield (Mo.) Company. He told me not to say anything about the way business was increasing in the district, for fear he would be again considered as in the market for additional apparatus. He seems to think it is about time that the shareholders should get a sensible return on their investment.—F."

Mr. Gilbert S. Raymond has been appointed third member of the Norwich (Conn.) Board of Gas Trustees, succeeding Judge Thayer, who positively declined to longer serve.

The huge Fort Wayne (Ind.) lamp manufacturing plant of the General Electric Company has been hooked up to the mains of the Fort Wayne Gas Company. Heretofore natural gas was supplied to lamp works.

A correspondent in Philadelphia, Pa., writing under date of the 11th inst., incloses the following, which was printed in the *Ledger* of that city, dated that day: "If the organization leaders will give the word, gas consumers in Philadelphia will pay 85 cents per 1,000 cubic feet after January 1, 1908, instead of $1, the present charge. The reduction in the price rests entirely with City Councils, and that body, it is said, is awaiting word from the organization leaders, who, with Mayor Reyburn, are opposed to the reduction because it will cut down the city's revenue several hundred thousand dollars a year and may force them to increase the tax rate, a step they wish to avoid. Advocates of this vast saving to themselves and fellow Philadelphians will make a determined effort to secure action in the Councils on the Hardart ordinance, now slumbering in a pigeonhole of the Common Council Committee on Gas, of which Alfred Gratz, of the Eighth Ward, is Chairman. The Hardart ordinance puts the price of gas, beginning January 1 next, at 85 cents. It was introduced just before the summer recess. Since then Mr. Hardart has made repeated efforts to get action on the part of the committee, but has failed. Mr. Hardart's ordinance is as follows:

"Select and Common Councils of the city of Philadelphia do ordain that on and after January 1, 1908, to January 1, 1913, the maximum charge to consumers of gas per 1,000 cubic feet shall be 85 cents. On and after January 1, 1913 to January 1, 1918, the maximum charge to consumers for gas per 1,000 feet shall be 80 cents. On and after January 1, 1918 to December 31, 1927, inclusive, the maximum charge for gas to consumers shall be 75 cents per 1,000 cubic feet."

"Under the terms of the gas lease the United Gas Improvement Company will receive only 85 cents a 1,000 cubic feet after January 1 next until 1913. The same charge of $1 a 1,000 feet will be made unless the Hardart ordinance is passed and signed by the Mayor. If it is not the Company will receive 85 cents and must give the city 15 cents a 1,000 feet. Officers of the U. G. I. Company say they are in favor of the Hardart ordinance as they believe the consumers should get the 15 cents rather than the city."

Mr. A. N. Ulrich, who as Receiver has been in charge of the properties of the Lehigh-Northampton (Pa.) Gas and Electric Company for some time, has turned the same over to the owners. The latter have perfected the following organization: President, M. L. Finckel; Treasurer and Secretary, Horace Evans; Manager, G. W. Steele. Its corporate name has been altered to that of the Lehigh and Northampton Light, Heat and Power Company. The concern supplies light, heat and power to the settlements of Catasaqua, Fullerton, Hookendauqua, Coplay, Northampton and Siegfried.

The municipal electric lighting plant heretofore operated by the taxpayers of Shepherdstown, Md., has been disposed of to Mr. John L. Livers, whose purging of the system it is hoped will enable the citizens to have quite a bit more light in their houses than they had when "the public" were at the helm.

The following comes to us by way of the Borough of Brooklyn, N. Y., under date of the 12th inst.: "By the decision of the Public Service Commission for the Second District of New York, the consolidation under a new name of the two Lockport lighting and power companies is permitted, but the proposed stock increase as a part of the merger is prohibited. The Companies have been for some time engaged in a bitter competition which resulted in the lowering of prices for light, heat and power, and to put an end to that the merger was proposed and agreed to, and application was made to the Commission for sanction to engage in business as a new concern. The application was opposed by the Attorney-General and by the city of Lockport, the former asserting that it was proposed to form a monopoly in contravention of the Commission law, and the latter that the elimination of competition would result in increased and exorbitant charges for the service the Company proposed to render. In presenting its own views, the Commission expounds the law in a way that meets both objections, it dismisses the Attorney-General's objection by citing the decision of the Appellate Division, in Rafferty vs. the Buffalo Gas Company, and that of Justice McCall, in the Consolidated Gas Company case in this city, in which it was held that such consolidations do not create monpolies within the meaning of the statute. In coming to this conclusion it says—while the law forbids consolidation, either directly or indirectly, without the approval of this Commission, it at the same time permits such consolidation whenever in the opinion of this Commission it is for the public advantage to do so, and it recognizes that this may be the case by placing in the hands of the Public Service Commission great power, designed to secure the community in that case against poor service or extortionate rates. It meets the objection of the city of Lockport by deciding that there shall be no increase in the prices charged for light, heat and power over those prevailing at present; and that there may be no excuse for any attempt to increase prices, it argues that better service at a fair price can be more readily given by one corporation than by several, and with the use of less capital. Wherefore, citing the law, it permits the merger and the issue of bonds in the sum of $700,000, equivalent to the total issues of the two old companies purchased by the newer one for the purposes of consolidation, and forbids the issue to the extent of $1,200,000, as it proposed; so that there will be no need or desire to earn interest and dividends on the excess of securities named. The new corporation is named the Lockport Light, Heat and Power Company, and the two it has purchased were known respectively as the Lockport Gas and Electric Company, and the Economy Light, Fuel and Power Companyof Lockport."

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
ELBERT P. CALLENDER,
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NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

NOTIFICATION RESPECTING ADVERTISING.

Orders for new advertising, or for changes in standing advertisements, to insure attention in the issue following their reception, must be in hand any time of Wednesday.

AGENTS:

New York—American News Co., 39 and 41 Chambers St.
Germany—Lemcke & Buechner, of New York.
England—Aug. Siegle 30 Lime Street, London.

MONDAY, NOVEMBER 18, 1907.

The Market for Gas Securities.

Consolidated managed to cross 95 since last time of writing, and then managed to flop back to 85, at which price it opened this morning—Friday. Why it should drop 10 points in a week is beyond the ken of those who plan on a value basis. *Sicut ante* goes not now in the purchase of gas shares in these parts. Perhaps time's will change; at any rate let us hope so. Brooklyn Union is 80 to 100, with no inquiry for it. The shares seems absolutely lifeless.

Peoples, of Chicago, is again at 74½, and Massachusetts gas looks better than ever at the absurdly low price of 45½ to 46. Cincinnati holds its value about as well as anything on the entire list.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

NOVEMBER 18.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

N. Y. City Companies.	Capital.	Par.	Bid.	Asked.
Consolidated	$73,177,000	100	85	85¼
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	92	97
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	..	105
Mutual	3,500,000	100	..	170
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	75	80
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p.ct.	1,000,000	..	98	104
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	93	98
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	100	105
Con. 5's, due 1945, J. & J.	1,500,000	..	97	101
Standard	5,000,000	100	70	100
Preferred	5,000,000	100	100	125
1st Mtg. 5's, due 1930, M. & N	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	80	100
1st Con. 5's, due 1948, M. & N	15,000,000	..		102
Yonkers	299,650	500	130	..
Out-of-Town Companies.				
Bay State	50,000,000	50	¼	⅜
" Income Bonds	2,000,000	1,000	..	75
Binghamton Gas Works	450,000	100	..	65
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
" " Bonds, 5's	5,250,000	1,000	63	66
Capital, Sacramento	500,000	50	..	35
Bonds (6's)	150,000	1,000	..	..
Chicago Gas Co. Guaranteed Gold Bonds	7,550,000	1,000	104	106¾
Cincinnati Gas and Electric Co.	29,500,000	100	93¾	94
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	92	98
Columbus (O.) Gas Lt. & Heating Co	1,682,750	100	87	88
Preferred	3,026,500	100	107½	108
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	..	90
Mortgage, 6's	3,500,000	..	..	118
Chesapeake, 1st 6's	1,000,000	..	..	..
Equitable, 1st 6's	910,000	..	..	..
Consolidated, 1st 5's	1,490 000	..	..	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	..	..	100
Detroit City Gas Co	5,000,000	50	..	50
" Prior Lien 5's	4,618,000	1,000	..	98
Detroit Gas Co., 5's	381,000	1,000	75	80
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	39	40
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	55	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	..	102	105
Bonds, 5's	10,500,000	..	101	102½
Indianapolis	2,000,000	..	60	70
" Bonds, 5's	2,550,000	..	104½	105
Jackson Gas Co	250,000	50	82	..
" 1st Mtg. 5's	200,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	86
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	..	100
Preferred	2,500,000	100	75	100
Bonds	10,000,000	1,000	104	104½
Lafayette Gas Co., Ind.	1,000,000	100	..	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas & Elec. Co.				
" 1st Mtg. 6's	350,000	1,000	106	108½
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies of Boston	25,000,000	100	45½	46
Preferred	25,000,000	100	79	79½
Montreal, Canada	2,000,000	100	218	218½
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co.	6,000,000	..	56	58
Bonds, 6's	6,000,000	..	137	138
New Haven	2,000,000	25	200	..
Peoples G. Lt. & Coke Co., Chicago	25,000,000	100	74¼	75
1st Mortgage	20,100,000	1,000	..	..
2d "	2,500,000	1,000	104	..
Rochester Gas & Elec. Co.	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	104½	105½
San Francisco, Cal.	15,800,000	00	..	..
St. Joseph Gas Co. 1st Mtg. 5's	751,000	1,000	92	..
St. Paul Gas Light Co	1,500,000	100	45	47
1st Mortgage 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	96¼	..
Syracuse, N. Y. 5's	1,975,000	100	50	55
Bonds	2,047 000	1,000	102	..
Washington, D. C	2,600,000	20	350	400
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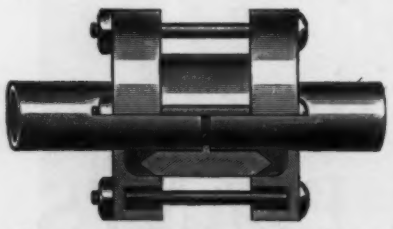
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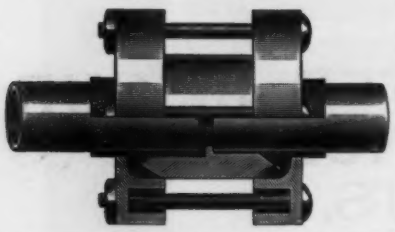
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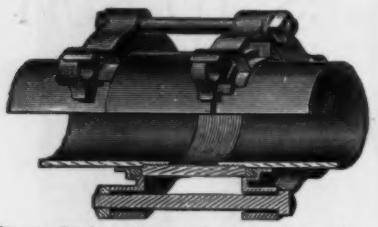
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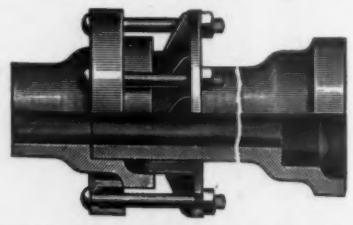
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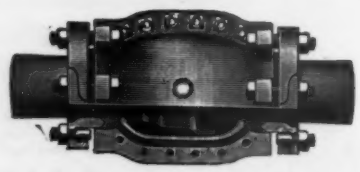
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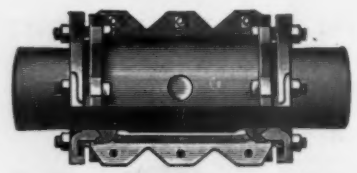
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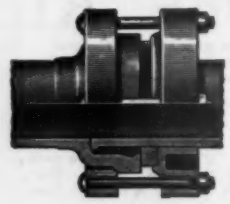
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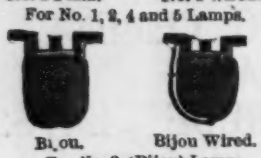
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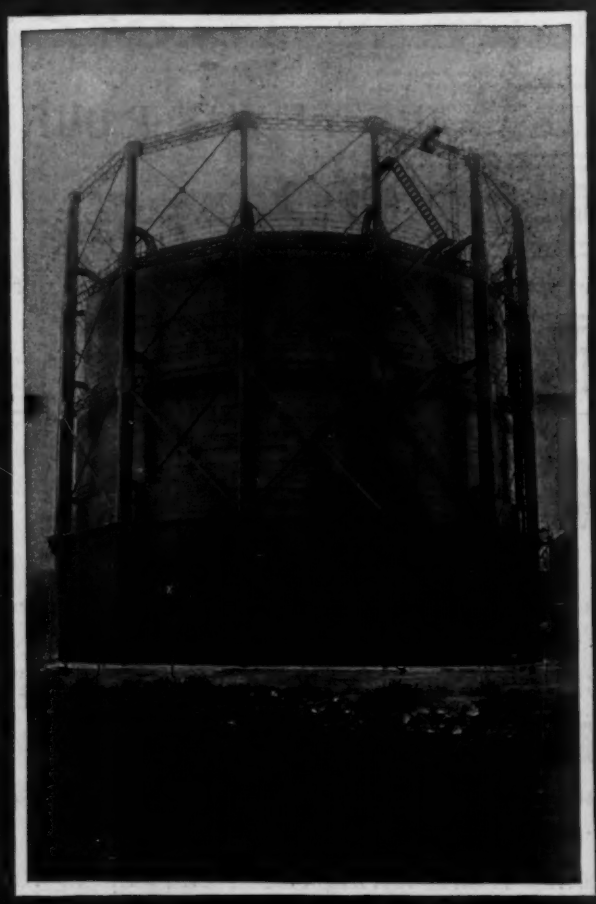

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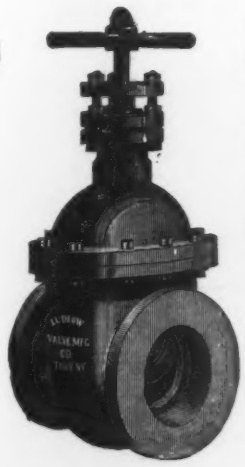

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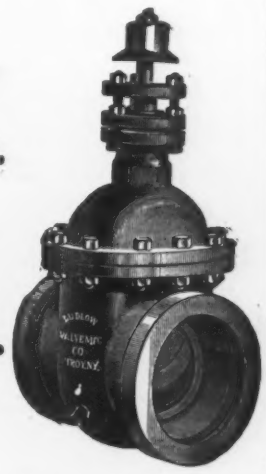

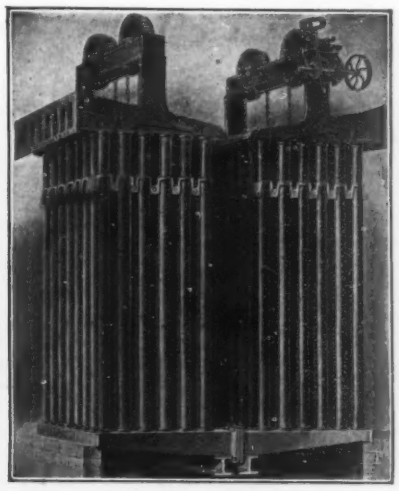

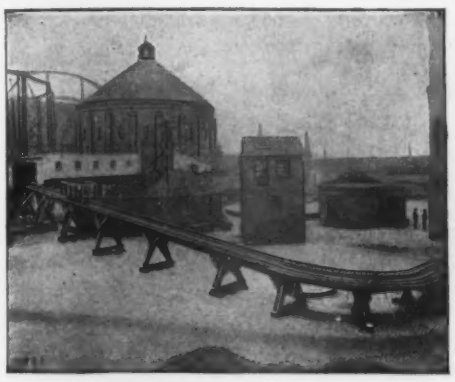

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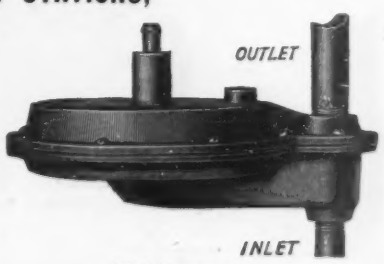

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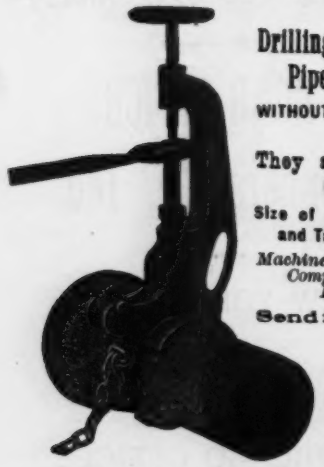

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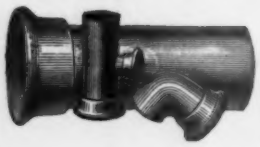

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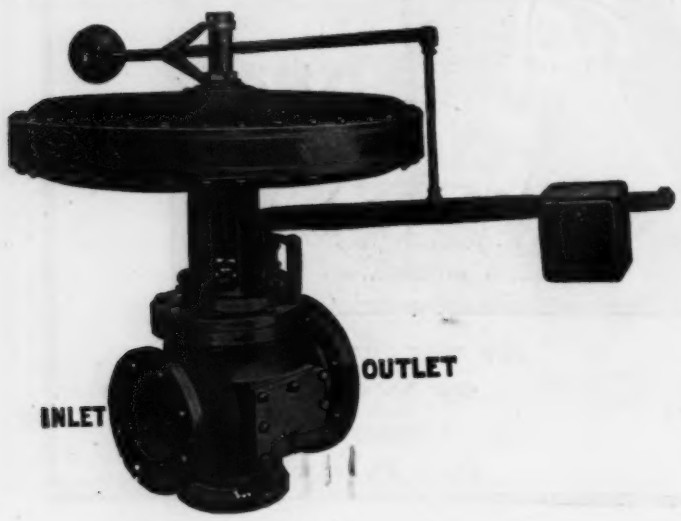

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PUBLIC LIGHTING TABLE.

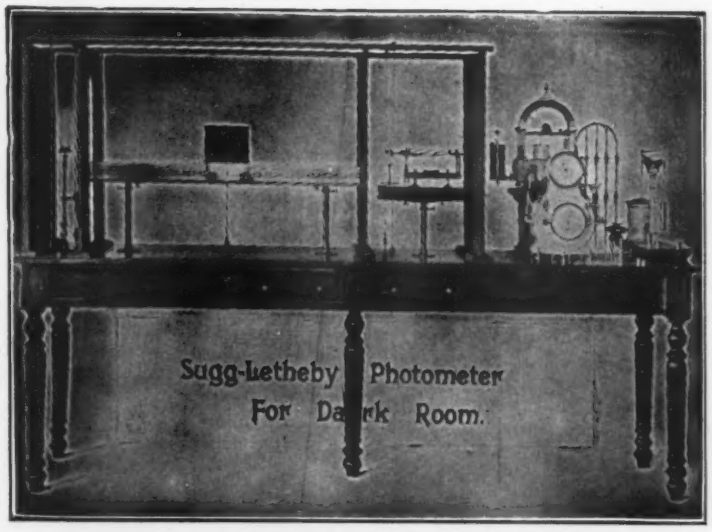
DECEMBER, 1907.

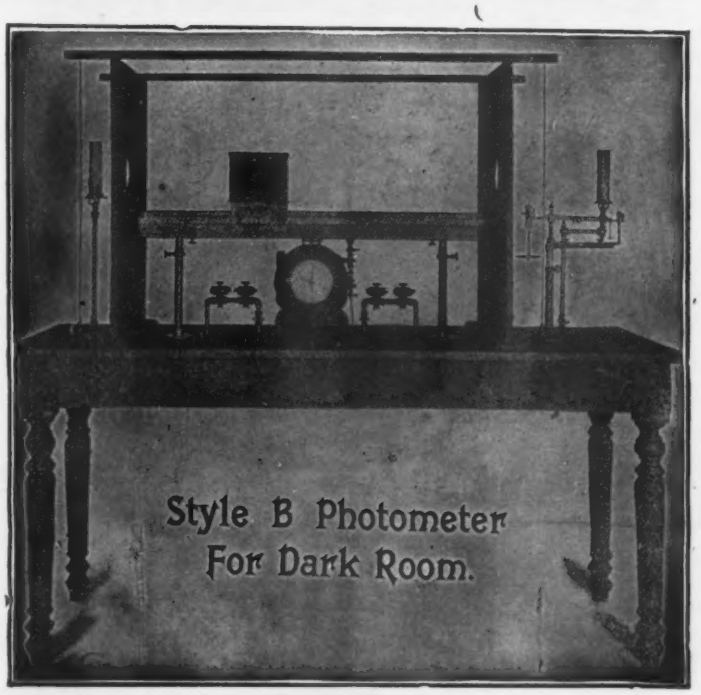
Day of Week.	Table No. 1. FOLLOWING THE MOON. Date.	Light.	Extinguish.
Sun.	1	5.00 PM	6.00 AM
Mon.	2	5.00	6.00
Tue.	3	5.00	6.00
Wed.	4	5.00 NM	6.00
Thu.	5	5.00	6.00
Fri.	6	5.00	6.00
Sat.	7	5.00	6.00
Sun.	8	5.00	6.10
Mon.	9	8.20	6.10
Tue.	10	9.30	6.10
Wed.	11	10.40 FQ	6.10
Thu.	12	11.50	6.10
Fri.	13	1.00 AM	6.10
Sat.	14	2.00	6.10
Sun.	15	3.00	6.20
Mon.	16	4.00	6.20
Tue.	17	5.00	6.20
Wed.	18	No L.	No L.
Thu.	19	No L. FM	No L.
Fri.	20	No L.	No L.
Sat.	21	5.10 PM	7.20 PM
Sun.	22	5.10	8.20
Mon.	23	5.10	9.10
Tue.	24	5.10	10.10
Wed.	25	5.10	11.10
Thu.	26	5.10	12.10 AM
Fri.	27	5.10 LQ	1.10
Sat.	28	5.10	2.10
Sun.	29	5.10	3.20
Mon.	30	5.10	4.30
Tue.	31	5.10	6.20

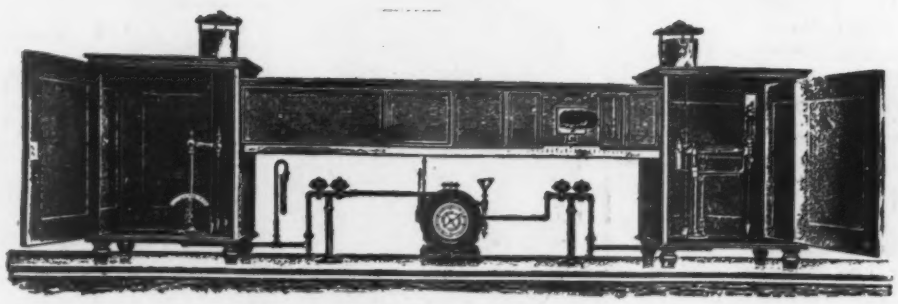
TOTAL HOURS DURING 1907.

By Table No. 1.

	Hrs.Min.
January	211.10
February	193.40
March	182.10
April	167.00
May	157.00
June	145.30
July	151.50
August	162.30
September	175.30
October	202.40
November	209.30
December	231.50
Total, yr.	2190.20







Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

DECEMBER, 1907.

Day of Week.	Table No. 2. NEW YORK CITY. All Night Lighting. Date.	Light.	Extinguish.
		P. M.	A.M.
Sun.	1	4.20	6.10
Mon.	2	4.20	6.10
Tue.	3	4.20	6.15
Wed.	4	4.20	6.15
Thu.	5	4.20	6.15
Fri.	6	4.20	6.15
Sat.	7	4.20	6.15
Sun.	8	4.20	6.15
Mon.	9	4.20	6.15
Tue.	10	4.20	6.20
Wed.	11	4.20	6.20
Thu.	12	4.20	6.20
Fri.	13	4.20	6.20
Sat.	14	4.20	6.20
Sun.	15	4.20	6.20
Mon.	16	4.20	6.20
Tue.	17	4.20	6.20
Wed.	18	4.20	6.20
Thu.	19	4.20	6.20
Fri.	20	4.20	6.20
Sat.	21	4.20	6.20
Sun.	22	4.20	6.20
Mon.	23	4.20	6.20
Tue.	24	4.20	6.25
Wed.	25	4.20	6.25
Thu.	26	4.20	6.25
Fri.	27	4.20	6.25
Sat.	28	4.20	6.25
Sun.	29	4.20	6.25
Mon.	30	4.20	6.25
Tue.	31	4.20	6.25

TOTAL HOURS DURING 1907.

By Table No. 2.

	Hrs.Min.
January	428.20
February	355.25
March	355.35
April	298.50
May	264.50
June	234.25
July	243.45
August	280.25
September	321.15
October	374.30
November	401.40
December	433.45
Total. yr.	3987.45

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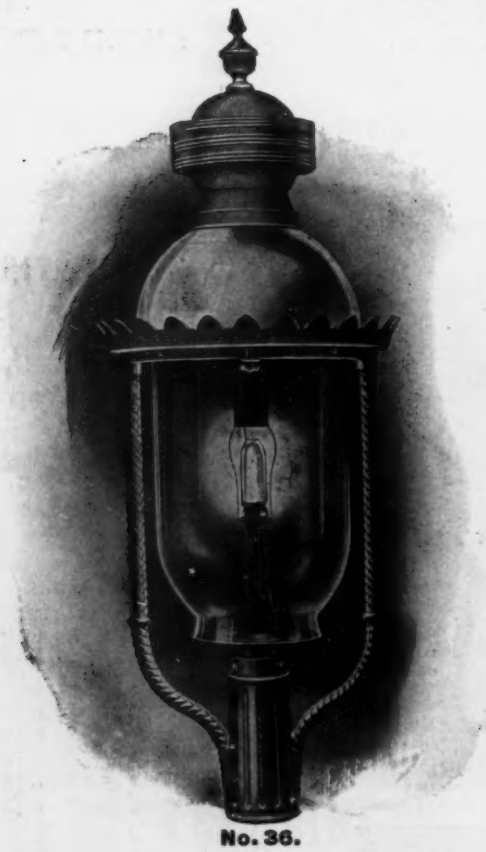

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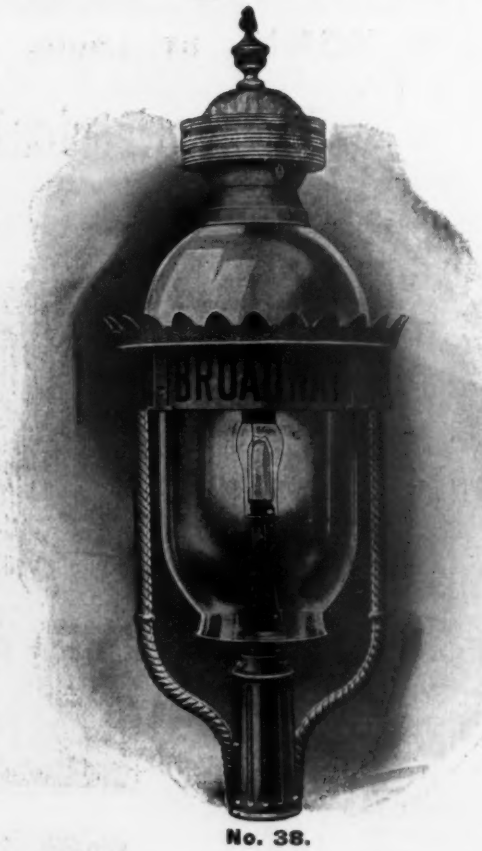

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Sioux Falls, S. D. (3d contract).
Philadelphia, Pa.

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TOTAL SETS TO DATE, ... 668
TOTAL DAILY CAPACITY, ... 541,655,000 cu. ft.

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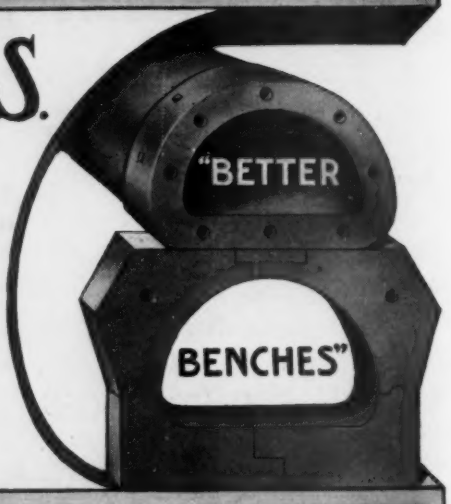

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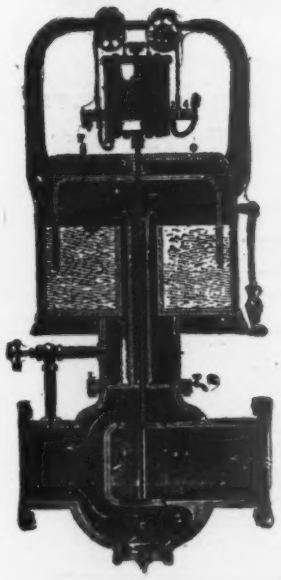

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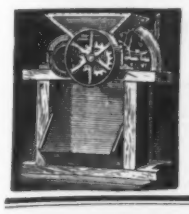

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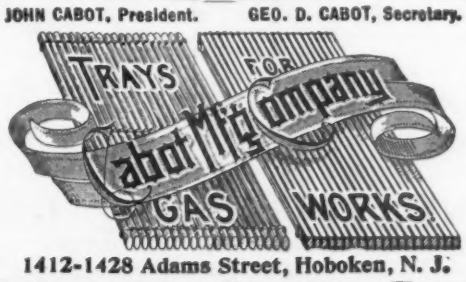

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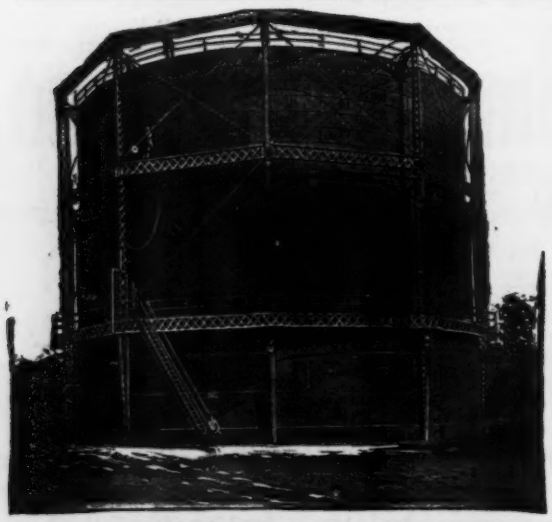

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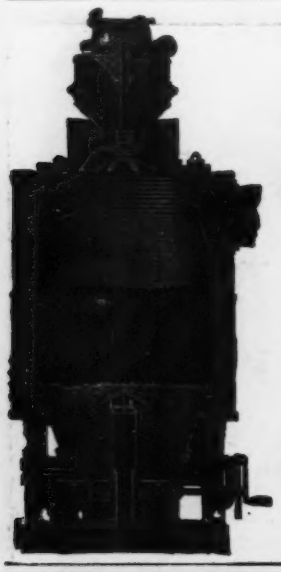

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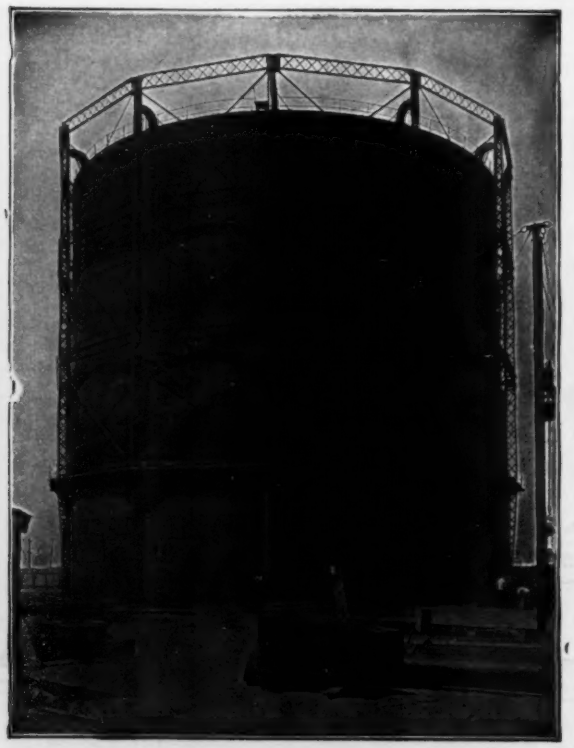

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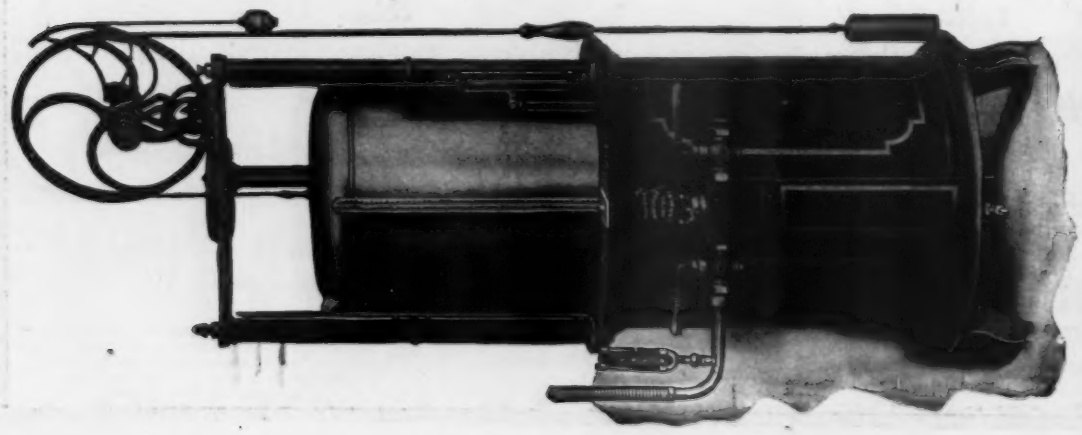

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